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ORIGINAL LECTURES.

CELL LIFE AND ANIMAL LIFE.

An Address delivered at the Opening of the Seventy-sixth Session of the College of Physicians and Surgeons, New York, October 2, 1882.

BY T. MITCHELL PRUDDEN, M.D.

GENTLEMEN: We are met to-night upon the threshold of the opening college year, as devotees to the science of medicine, and it is the cherished purpose of this college, with all the facilities which its position and scope, and five and seventy years of experience afford, to teach this science in an unostentatious, but liberal and comprehensive way, to earnest and faithful men.

It is a fact which is daily thrusting itself into greater and greater prominence, that the science of medicine is only a single department of the more far-reaching science of biology—a science which treats of *all* living things from the tiniest microscopic fungus up to man.

In the earlier days of medicine, the close relationship between man and other living things was not recognized. Man stood apart in nature, upon a pedestal of his own creating, related to other living things only as their master, and the explanation of the mysteries and wonders of his existence were sought exclusively above or within, and not beneath him. To-day we know, however much remains yet untraced, that his relations to lower beings are most intimate, and that if we would understand his most complex organization, we must approach him through the more simple forms of life.

Moreover, however we may stand related in opinion to the great question, whether there is not some inscrutable factor in man, by which after all he does differ in a most essential manner from all else in nature, we are perfectly agreed that, as far as they go, the physical and chemical, and other natural laws, reign with a dominance as supreme, and as inexorable in the human body as in the tree, the reptile, or the distant star, and in precisely the same way. The ray of light is refracted with no less precision in the human eye than in the water of the lake; the restless vibrations of the molecules are as true to their orbits in the human brain as in the block of granite, or the tongue of fire.

As a result of this conception, it is evident that the devotee to medical science must be very hospitable to the sister sciences, even on the ground of simple policy, for they are indispensable to the welfare of his chosen goddess, and it is only through their aid that he can worship acceptably at her shrine. This is a source of much embarrassment to medical educators, and it is getting to be very hard to know how to embrace in a curriculum devised for three short years all that is necessary for the successful prosecution of a course of medical study. Physics justly claims a hearing; chemistry stands at the very core and centre of all the vital processes; zoölogy shows us in her lower ranks the analogues and prototypes of man in structure and function, or even claims a proprietorship in us more intimate than this; and to-day botany, from that part of her domain which lies beyond the reach of the unaided vision, points out to us I know not what myriads of tiny monsters, which in varied guise of bacteria, micrococcus, bacillus, and all the rest are stretching out their poisoned fingers, demanding recognition with a persistency which *will* not be ignored, and which threatens to carry the whole world by storm.

Now what are we to do? To-day the question is not urgent, but to-morrow the machinery of college routine and duties will begin to move, and those of you who have been here before already know, and those whom we greet for the first time to-night will appreciate very soon, that the amount of material at your hands, the facts and thoughts presented to you day by day, which must be worked over and become a part of yourselves, will seem absolutely overwhelming.

The first thing is to understand precisely our position; we do not want or need to become zoölogists, or botanists, or chemists, or accomplished biologists, in order to be good physicians. It has indeed, I think, been abundantly demonstrated that special workers in these fields become far too much engrossed in the minutiæ of the themes which engage them, and perhaps too deeply penetrated with the precision and exactness of the methods which they employ, to permit of a devotion to that class of works and studies which the practical exercise of our profession demands. But it is also unquestionably true that an elementary training in general biology and its methods of research greatly facilitates a thorough comprehension of the principles upon which much that is taught in medical schools directly depends. And, practically, you will find that everywhere in those departments which are preparatory to the real business of your lives—the prosecution of the art of healing—in your anatomy and physiology, the facts elicited from researches on the lower forms of life make up a very considerable and important factor.

But it is chiefly to the elementary school and to the university that after all we do and must look for a systematic training in the elements of biology. The fact is that medical schools are simply technical schools, and it should be clearly understood that their first duty is to train physicians in the science and art of medicine as it exists to-day—to fit men to avert disease if possible, or to direct it to a favorable termination if they can, or, when the need comes, to lead the hopeless patient as painlessly and gently as may be to his rest. The point which I wish to urge here is that we ought to fully appreciate the importance to us, as medical men, of the researches and advances in these collateral and closely allied sciences, so that even though we may ourselves fail of a thorough elementary training in them, we may yet fully recognize their value for those who have still the opportunity, and whom we may perchance advise; and yet more, that we may ourselves be in a state receptive to facts which now and again will come to us from without, and which may throw wonderfully illuminating beams along our path if only we know their value.

You will find that at this college, those subjects which experience has shown to be most essential to the successful practice of medicine are arranged in a progressive series, so that each year finds its appropriate studies. And you will doubtless discover that with all due care in the systematic disposition of your time, and with all the energy and enthusiasm which the nature of our themes is so well fitted to inspire, three years are all too short for the acquirement of that knowledge which it behooves us to possess. And you

will doubtless acquiesce in the conviction which is becoming almost universal among medical educators, that a fourth year must soon be added to the systematic course of study, if we would keep pace with the rapid progress displayed in many departments of medical science.

It is my special purpose in this address, to show you by a few simple illustrations of a theme, which is very familiar to many of you, how potent is the aid which comes to us in the study of man, from the contemplation of lower forms of life, and with what readiness long series of apparently isolated facts crystallize around some guiding principle, which may be seen cropping out here and there all along the whole scale of living things, when once we bid our eyes to look so far.

In general anatomy we learn that the body consists of a bony framework, around which various tissues and organs are securely, and compactly grouped. When we have learned the size, shape, number, relations, and names of all these parts, our study of macroscopic or general anatomy is done. If, however, entering that department of anatomy known as histology, we trace the manner in which these parts are made beyond the point where the naked eye can avail us, we find that they are all composed of certain tiny organisms called cells, and that these cells are held together and associated by certain materials which lie between them, and which are the products of their transformations.

Just as the chemist has his atoms and molecules, to which in the last analysis he refers the properties which all known substances possess, and explains by differences in their nature and movements, the various chemical phenomena which matter exhibits, so we may refer both the structural features, and all the activities of the animal body back to the structure and activities of our elements—the cells. While the chemist, however, must infer the existence of his atoms from their deeds, armed with the microscope we can see our cells, observe the things they do, and definitely trace out their life history.

Cells are little masses of matter of peculiar chemical constitution and of varied shapes and consistence which at some time exhibit that complex of phenomena which we call life; and the life of one of the higher animals is simply the sum of the more or less independent but coördinated lives of the cells which compose it, all acting in harmony. Living things differ from the non-living in that they have certain activities through which their life is expressed. In the first place, they are capable, in spite of various opposing forces, of maintaining their individuality, and by holding a balance between waste on the one hand and assimilation on the other, a series of capacities arise, which we call nutrition, growth, and development.

Living things, in the second place, possess certain activities by means of which they are capable of producing new individuals like themselves; in other words, they are endowed with the power of reproduction.

Lastly, living bodies, in response to varied influences, are capable of *doing* certain things in the way of movements or of elaboration of peculiar chemical products, etc., and these are called their functions.

You will observe, Gentlemen, that in enumerating these activities, I have spoken of them not as characteristic of man or of any special animal or plant, but of living things in general.

All life finds expression in these ways. The means by which the living being does these things may be in one case exceedingly primitive, and in another very complicated, but this does not alter the essential character of the ends which it achieves.

If you tie a bit of muslin over a water faucet and allow the Croton water to trickle slowly through it for a few hours, you will find on removing it that a more or less abundant greenish scum has collected on the cloth. Wash this carefully into an open dish, and let it remain for a few days in a light warm place, and then examine the sediment under a microscope, and you will find a very celebrated creature. It is called an amœba. It looks like a little lump of transparent or slightly granular jelly. You will see it thrusting out portions of itself in the form of longer or shorter arms, and then withdrawing them and sending out others in another place, apparently in the most aimless way; or you may see it rolling itself over and over, or, if I may so say, flowing along, so that it travels with considerable speed. Perhaps some microscopic vegetable will lie in its way, and it will flow over and enclose this, and, after digesting portions of it, expel the residue from whichever side or surface of its body may be most convenient. If, in a quiescent condition, it be touched by an external object, you may see it move in direct response to the irritation. If you are fortunate in your observation, you may see a constriction appear around some part of the lump, which grows gradually deeper until a portion of the mass separates from the rest and crawls off on its own hook as a new and independent amœba. It has no lungs, and yet it breathes; no mouth, still eats; no definite shape, yet grows; no nerves, yet is sensitive; no sex, yet may give birth to endless progeny.

Now this amœba is one of the lowest and simplest of creatures, and is the type of a cell—a creature which is composed of a single cell, and all the activities which I have mentioned as characteristic of living things are exhibited in it. It is a perfectly independent being, doing everything for itself, and doing nothing particularly well, except, perhaps, performing the function of reproduction, which it does with such ease and nonchalance as leaves little to be desired. The young which it produces are just like the parent, single cells, and their very first post-natal act may be to give birth to other amœbas.

Now let us advance a step in the scale of being, to an animal composed of several cells. There is a little creature, one of the group of sponges, called Olynthus. Let us start with the ovum of the animal, which is a single cell, not very unlike the amœba in appearance. Under suitable conditions this cell divides as the amœba does, and two cells are produced, just exactly alike. They do not separate, however, as do the amœba's to become independent individuals, but remain fastened together; then each cell divides again, and these still further until we have a little mass of cells all looking alike, and the whole somewhat resembling a mulberry in shape. But now a change comes, the cells on the outside become longer than the rest, and little hair-like processes, called cilia, grow out from them and begin to vibrate to and fro, and acting like tiny oars propel the little creature through the sea. Presently the rest of the cells arrange themselves so as to form a central cavity, with an opening at one side, the whole looking something like a tiny cup. The animal now attaches itself to a sea-weed, or a rock, and no longer needing the locomotive cilia, they disappear; but as it can no longer travel, it can no longer seek its food, which must be brought to it. Accordingly, we presently find that through the sides of its body little holes appear, and the cells lining the central cavity lengthen and develop cilia, whose vibrations maintain a current of water through the body which brings with it oxygen and food. This is the adult Olynthus.

Now observe, if you please, what has happened in the development of this little creature. A single cell divided into several cells, at first all just alike, and all

doing the same thing, but soon, as if in response to the growing needs of the animal, certain of the cells developed a special apparatus, and special capacity for performing rapid movements, and this capacity was associated with changes in the form of the cells; a specialization which signalized its advance to a higher type of existence.

Just here we come upon the great principle, in a very simple form, upon which the enormous differences between higher and lower animals rest; the principle of the physiological division of labor in cells. The more perfect the individual is, the more elaborate do we find the expression of this principle.

The difference between the amœba and the Olynthus from our present point of view—that which makes of the latter a higher animal than the former—is that it has a certain group of cells set apart to do a special thing, to move rapidly; amœba moves, but not so rapidly nor with such directness. If another group of cells were set apart in Olynthus to do the digesting, no new cell powers would be developed which the amœba does not posess, the primitive assimilating power would simply be specialized and intensified, and the animal would have risen to a higher grade of being

It would not be difficult, did time permit, to trace the manner in which, as we pass upward in the animal series, certain groups of cells become more and more elaborate in structure as they assume higher and more specialized capacities. We cannot tarry for this, but will glance for a moment at the exhibition of this principle in the development of man. In man, too, life commences in a single cell called the ovum: a cell which, though harboring potentialities of the highest order, in many respects greatly resembles our little denizens of the Croton water. This cell, under suitable conditions, divides and sub-divides, forming a little cluster of cells all looking alike. Then these cells arrange themselves in layers, some of them assume special forms as they increase in number, and develop special capacities and group themselves to form the various tissues and organs of the mature body, which finally is formed of a grand community of coördinated groups of cells, some of which have acquired the power to do special things in the most perfect way, while others have remained in a condition of comparatively low organization. Let us look at two examples of these two types of cells from the adult body—first at certain muscle cells. These in the very young animal look just like many other cells; they are individuals, they are alive and their life finds expression, just as the amœba does, in certain activities, nutrition, growth, function, and reproduction. Presently they become longer than their neighbors, little striations appear along their sides, they grow long and narrow until at last they are little thread-like bodies with a very complicated internal structure, and are grouped in bundles to form the muscles as we see them with the naked eye. You already know or will soon learn the peculiarities of structure of these muscle fibres and how such elaborateness of structure is necessary for the performance of the work which they have specially to do; namely, the accomplishment of rapid and powerful movements. Now the capacity of the muscle cells for doing this work has been acquired, if I may so say, at the expense of some of the other capacities which they originally possessed in common with other cells. Thus the power of reproduction is in them almost if not quite completely absent. They can also no longer seek out and take up crude food but it has to be prepared for and brought to them and in order that this may be done, certain other cells in the body develop the power of elaborating a peculiar fluid—gastric juice, which helps to change the crude food so that it finally becomes fitted for the nourishment, among others, of the special workers, the muscle cells; other cells—the red blood cells—develop the capacity of bringing them oxygen and in doing so have lost many capacities which are possessed by lower forms. Other cells develop in a peculiar way to form the nerves by which all the various parts of the body are brought into harmonious action, and so on. Thus we see in the higher animals each highly developed cell working for the others as well as for itself and for the organism as a whole, only its chief endeavor is concentrated in some one special thing, and as a result of this concentration some of the more general cell powers are lost or diminished.

Now look for a moment, on the other hand, at a type of cells which have not undergone this marvellous change. Take the white-blood cells, or the connective-tissue cells, for example. These simply remain in a condition of low organization. They are nourished; they grow; they can reproduce their kind; and can slowly move, all apparently in much the same way that the amœba does, their reproductive power, if any, being their most marked capacity. That they have great potential capacities, and are of incalculable service in the economy we may assume, but have not now time to show.

These examples must suffice for illustration of the great principle of the physiological division of labor in cells.

We find a close analogy to this, although it seems almost too trite to mention, in the division of labor in society. In primitive conditions of society, each man gets his own food as best he can, builds his own house, makes his own furniture, if he has any; in a word, manages his own existence on a quite independent basis. As society advances the tendency always develops for different men to do special things, and one man hunts, another tills the soil, another cooks; one becomes a carpenter, another a cabinet-maker, a great many become doctors, and so on; each getting the benefit of the other's special skill, and in turn contributing his own. In this way the same end—the maintenance of the individual—is not only more easily but better accomplished. But this arrangement, although on the whole advantageous, involves the unsymmetrical development of the individual. The hunter will find it hard to make a bureau, and the cabinet-maker looses much of that acuteness of vision and steadiness of nerve, which the man who shoots his game retains. The cook would scarcely succeed in composing an essay on molecular vibrations, and the physicist would doubtless prepare a chop most vilely.

But this is by no means the only expression of this principle in nature. Back of the division of labor in society, lies the division of labor which is expressed by sex. In many of the lower animals, as you well know, both sexes are found in one creature, these are hemaphrodites; but division of labor supervenes, and in the higher animals the larger part of the burden of reproduction is thrown upon a class of individuals which become the females.

In some parts of the Atlantic, and in the Mediterranean, there is found a lowly organized animal, allied to the jelly-fishes, which furnishes one of the most exquisite examples of the division of labor.

In this creature, which is composed of many individuals, we have first a central hollow stem, at the upper end of this is a little bladder filled with air, which floats the community just at the surface of the sea. Arranged around the upper portion of the stem are rows of little bell-shaped structures, which have the power of drawing in and vigorously blowing out the water, thus moving the community; these are the locomotive individuals, they do nothing else. Further down the stem are various kinds of individuals crowded together: first those which have become spread out into broad

hard plates, beneath which the others can hide in danger; then come the eaters, which are furnished with a complicated stinging apparatus, by means of which they catch their prey, a mouth into which it is thrust, and a stomach and liver for digesting it. Again there are separate individuals having long tactile feelers, these are the more acutely sensitive members of the community. There are, further, those whose sole duty is to perpetuate the species, and of these there are males and females. The food which is caught and digested by the eaters, does not nourish them alone, but passing into the central hollow stem goes to all the rest.

The character and actions of these workers show that they have a certain individuality of existence, but that they are closely dependent upon one another, and the whole constitutes a single animal. The creature commences life like a common polyp with a long stem; simple buds are at first formed all looking alike, but gradually these become changed into the various forms which I have so hurriedly described. These creatures are called Siphonophores, and as they swim about form one of the most beautiful of natural objects.

But we need not look so far away from home among the lower animals for illustration of this principle. Among the bees and ants it is displayed in such varied and striking ways that the accounts given us of the habits of these creatures read like romances or like travesties of human society. In fact, turn where you will you find the same thing, not in animals alone, but in plants as well. The various parts of the flower—corolla, stamens, pistils—are all only modified leaves, modified in the first place in form to serve the cruder purposes of generation, and then in color and fragrance in answer to the more refined and varied needs of their existence. And it is essentially the same principle extended to the grouping of living beings on the globe and to those which have left their traces in the rocks, which is involved in the grand generalizations of the celebrated English naturalist and philosopher, whose death we have so recently been called upon to mourn.

It is not a little inspiring, Gentlemen, to find, as we slowly and painfully trace out the structure and functions of the various parts of the human body at the dissecting table, in the physiological arena, and under the microscope, that we need not to hold all the minute and multifarious details which we discover as so many isolated unresponsive facts, but that they are all expressions of great underlying principles, boundless as nature itself and instinct with the pulse-throb of the universe.

Did time permit, I should like to picture for you the character and destiny of some of the lower forms of cells, which we find in the human body; those which have not undergone that differentiation in structure and function which belongs to higher types; to speak of the marvellous potentialities which are dormant in them; to show you how their very simplicity of existence, the absence of special powers, and their boundless capacity for reproduction particularly fit them to become the conservators of the individual; to indicate what an important *rôle* some of them play in the healing of wounds and in the formation of new tissues; or rather, let me be more specific, and say that I should like to lay before you the reasons which we have for thinking that in the healing of wounds involving the more highly organized tissues, such as muscles, nerves, etc., it is not chiefly the cells of these tissues themselves which initiate and carry on the healing process, and form the new tissues which are to replace the old, but it is the lower forms which apparently play the leading *rôles*. And it is a curious fact that when the new tissues are formed in the adult body they do not spring at once in mature form into being, but pass always through developmental stages similar to those which are observed in the early formation of the embryo. So that we are not to think of the lower forms of cells in the body as insignificant, because under ordinary circumstances their being and performances are humble, and inconspicuous, for they seem to be ever ready, either resting quietly in their tiny nooks within the solid tissues, or driven restlessly in the rushing torrent of the blood, to assume again the lowly but active powers of embryonic cells, and begin the work of reproduction and repair. Then if we had time to scan the reverse of this picture, we might see in these lowly organized cells how, when the conditions of their existence are at fault, they may, loosing their benign and conservative character, become freighted with most malignant potency, and subtlety, or with overwhelming suddenness, lead the body on to disease or death. It might be interesting to see how in the domain of pathology, which is the department dealing with abnormal perturbations, and changes of these various cell communities, some of the gravest questions have ever been, and still are, in reality only due to the uncertainty which yet exists as to which cells have undergone the changes involved in the physiological division of labor, and which still retain the power of adapting themselves in structure and function to the changed conditions of disease. But for the elaboration of all these suggestions, there is no time to-night.

I cannot refrain, however, from reminding you that since the day when the importance of the cell as a morphological and physiological factor in the animal economy became an established acquisition of our science, its dignity has never ceased to grow. And that as under the illuminating genius of Rudolph Virchow, of which you have heard so recently in this room, the principles of a cellular pathology were formulated, so one day we may hope to hear the enunciation of the no less profound, and perhaps more strictly practical, doctrines of a cellular therapeutics.

If I have accomplished the simple purpose of this address, I have shown you that all the varied structures and functions of the body are but the combined expression of the structure and lives of the cells which compose it; all coördinated and working in harmony by means of a self-built cellular mechanism. That, starting with the type of the most simple of living things, a single cell, the finished organism is an aggregate of the progeny of the original cell, some groups of which have developed special forms and powers, in accordance with a universal principle in nature. That the doctrine of evolution, even should the record of the rocks be incomplete and perfect continuity in the grouping of living species fail, still finds epitomized in every animal and plant which has escaped from the primitive simplicity of the lowest forms, a most pertinent illustration and convincing proof.

These thoughts, which may to many of you be simply reminders of facts and principles long since your own, I leave with you in the hope that at least in a subsidiary way they may be of value to you as you labor in the acquirement of that wealth of practical knowledge and fund of power which it is the primary duty of this college to impart.

If you still should ask me of the practical bearing of all these and kindred thoughts and studies, a question which medical men are, I think, too prone to utter, I answer simply that it is truth, truth concerning themes around which our best life endeavors will circle; and though from the contemplation of such truths we may not return laden with facts or thoughts which find immediate application, we cannot fail to bring a breadth of view and wider sympathy which will make us more powerful in any work which lies at hand.

ORIGINAL ARTICLES.

ELASTIC TENSION AND ARTICULAR MOTION IN POTT'S DISEASE.

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(*Read by invitation before the Tompkins County Medical Society, at Ithaca, N. Y., September 20, 1882.*)

PROBABLY no plan of treatment in the whole range of mechanical therapeutics has ever attracted so conspicuous and wide-spread attention, or has ever advanced the interests of American surgery abroad, more than that known as Sayre's method of treating spinal disease. The rapid recognition by the medical profession throughout the civilized world of the practical advance thus made in the treatment of vertebral caries, should be looked upon with honest pride by every American physician and surgeon. Though fully appreciating the great value of this plan of treatment, and having obtained gratifying results from its use in a considerable number of cases, much clinical observation and careful thought convinced me some time since, that further improvements in the mechanical treatment of spinal caries were not only possible and desirable, but probably obtainable in the near future.

Without wishing in the least to detract from the credit justly due Prof. Sayre for the introduction of this simple method of treatment, but only with the idea of arriving at correct notions regarding its intrinsic scientific and practical value have I ventured to criticise it.

In an article published in the current October number of the *New York Medical Journal and Obstetric Review*, entitled "Non-uniformity of the Principles of Treating Pott's Disease as Taught by Prof. Sayre," I have called attention to the fact that the *aim* of treatment, irrespective of the extent of the degenerative processes, was to secure anchylosis of the involved vertebræ; that although "absolute rest," and the restriction of "motion of the parts diseased," are put forward as fundamental ideas in the treatment of this malady, not even an attempt was made to enforce them in caries of the spine in the upper dorsal or cervical regions; that while, in the treatment of the middle and lower dorsal spine, articular motion was abridged to a certain extent, it was practically unrestricted at the seat of disease by the jacket and jury-mast, when used in treating upper dorsal and cervical caries;[1] finally, that while voluntary articular motion was vouchsafed to diseased cervical vertebræ, all the healthy segments of the spine below the axillæ were doomed to months, perhaps years, of immobilization in so far as that is possible by the encasement of the body in a closely fitting plaster dressing from the crests of the ilii to the armpits. In a single sentence, that the same mechanical principles are not advocated for the treatment of spinal caries occurring above the axillæ that are so emphatically declared to be of prime importance when considering the treatment of this disease below that level.

The conclusions reached in that paper were, that there existed no valid reasons for a change in principles when treating different parts of the spine; that better results were obtained in the cervical region by elastic extension and voluntary articular motion, than by rigid extension and fixation, such, for instance, as is afforded by the plaster jacket in the middle and lower dorsal regions of the spine when applied during the suspension of the patient.

The explanation which I gave of the beneficial results obtained in the treatment of cervical caries by elastic tension and articular motion was that, owing to the elasticity of the traction force, the jar incident to locomotion was abolished, reflex muscular spasm was overcome, and the close approximation of the normal movements of the spine was rendered possible without the slightest irritation, notwithstanding the existence of the carious inflammation. The flow of the blood through the vessels is thus facilitated, especially through the capillaries, in which the effect of the diastole and systole is not felt. The efficiency of the respiratory function is also augmented. More blood and better blood, consequently more nutritive material, and that of a better quality, is furnished to the parts for the purpose of carrying on the repair of the diseased tissues.

A number of patients coming under my observation having spinal caries and treated by elastic extension and voluntary articular motion, have recovered in a comparatively short space of time, without anchylosis or deformity, and with as free and extensive movements as before the occurrence of the disease.

These brilliant practical results have led me to the conclusion that the aim of treatment in caries of the spine should no longer be the securing of anchylosis, but that here, as in the treatment of chronic inflammations of the ankle, knee, and hip, we should aspire to the restoration of the functions of the diseased joints.

Further stimulus to therapeutic experimentation in this direction is to be derived from certain comparative anatomical and physiological considerations, which I can not here detail. In order to furnish a clue to these however, I may state a well-known fact, namely, that the normal condition of the vertebral articulations like those of the extremities is such as to permit of more or less freedom of motion. The mobility of the various joints of the body, especially those of the lower limbs and of the spinal column is of great importance in the avoidance of concussion or jarring of delicate nervous structures, which would otherwise result from riding, walking, running, jumping, falling, etc.

Again, articular motion, both in the lower animals

[1] Another fact which I have observed in studying the mechanism of the jacket support is that, however carefully the dressing may be applied, considerable freedom of motion of the segments of the lumbar spine is always possible. Hence, by its use in the treatment of lumbar caries, "absolute rest" could not be afforded to the diseased vertebræ. This fact, however, does not preclude the possibility of obtaining good results from its use in these cases. On the contrary, in conjunction with the efficient sustentation afforded by the jacket in lumbar caries, articular motion becomes an important factor in bringing about a speedy cure, for reasons already given in the article above referred to.

and in man, like the analogous movement in plants, is of much greater importance than is generally supposed in the maintenance of a normal circulation, and hence, in supplying the requisite nutrition for the growth and development of the individual, and the carrying on of reparative processes in cases of disease.

It is, therefore, evident that Prof. Sayre in recommending the application of "the usual treatment of a broken leg" . . . . "to a carious spine,"[1] has not borne in mind the physiological condition of the parts involved in the two instances. By applying "a fixed dressing securing absolute immobility" to a broken leg, we promote as best we can the early re-establishment of the function of that member by bringing about anchylosis, or bony union of the fragments, thus restoring the fractured bony shaft to its original state of rigidity. But bony union of the vertebral articulations is not a normal condition, and, hence, to aim at such a result by treatment before anchylosis has begun, would be as unphilosophical and as unscientific as to aim at securing anchylosis in cases of chronic inflammation of the hip, knee, or ankle.

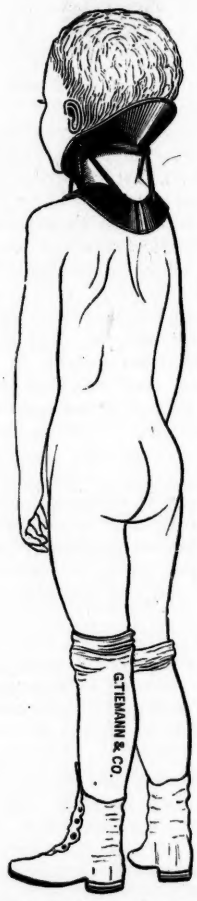
There still remains much evidence in favor of my position, which the limits of this paper will not permit me to adduce. Pathological observations, though they have not been as numerous as could be desired, furnish us with significant facts bearing upon this important subject. It is now pretty generally admitted that, at least in the great majority of instances, the carious process commences in the cancellous structure of the bodies of the vertebræ. So long, then, as the articular surfaces are not involved, surely there can be no reason for immobilizing the vertebral joints, if the pernicious influence of inter-articular pressure, due to reflex muscular spasm and superimposed weight, is overcome.

I wish now to briefly direct your attention to some apparatus which I have devised for the purpose of securing, at the seat of disease, continuous elastic vertebral extension and voluntary articular motion, together with the avoidance of inter-articular pressure and friction.

Without detailing the various clinical observations and experimental mechanical steps which have led to the adoption of a new apparatus for the treatment of cervical Pott's disease, I will at once submit to your notice the final result attained.

Fig. 1, from a photograph by Mr. James U. Stead, affords a good general idea of the appearance of the instrument when applied. As will be seen, it consists essentially of two encasements, an upper or cervico-cephalic, and a lower or cervico-trunkal segment. The superior one has a clasp under the chin, which can be opened or closed by means of a key, thus permitting of easy removal or reapplication. The inferior one is provided with a hinge posteriorly, and a clasp anteriorly. The surfaces pressed upon by these two enveloping segments serve as points for counter-pressure. Elastic linear extension of the cervical spine is effected by means of two strong spiral springs playing upon upright steel rods, which are placed on either side of the neck. The degree of elastic traction force which is exerted can be regulated at pleasure by the thumb-screws, which support the spiral springs on

FIG. 1.



the steel rods. The upright rods are provided with a ball-and-socket joint at their lower end, thus permitting of all the normal movements of the head to be made, while at the same time elastic extension is enforced. Rubber bands extending from a hook screwed to the upper end of the steel rod on either side, to the cervico-trunkal segment of the instrument serve as elastic stays. These bands are of varying strength, and by their use the head can be sustained in any desired position, or its movements directed and controlled.

By doing away with the spiral spring and substituting non-elastic stays for the rubber ones, rigid extension and fixation of the cervical spine could be more nearly realized than by means of most apparatuses designed for the treatment of these cases. Fig. 2, from a photograph, illustrates the inconspicuousness of the apparatus when the patient is dressed.

[1] Sayre on Spinal Disease and Spinal Curvature, London, 1877, p. 13.

This appliance leaves all the healthy vertebræ, as well as the muscles of the trunk, unrestricted. Muscular debility and retardation of growth of healthy vertebræ are thus avoided.

Fig. 2.

In the treatment of regions of the spine below the cervical, we have to descend at once to the crista ilii for a point against which to make counter-pressure. If the disease be not located inferiorly to the middle dorsal region, it is always advisable

Fig. 3.

to still make upward pressure against the inferior occipito-mental surface, as in the treatment of cervical caries. Hence the cervico-cephalic encasement is retained.

Take, for example, a patient having spondylitis of the middle dorsal vertebræ, resulting in a marked kyphosis, which is well illustrated in a case sent to me by Dr. F. Heuel, Jr. (*vide* Fig. 3, from a photograph by Mr. O. G. Mason). To carry out the idea of making elastic extension and affording lim-

Fig. 4.

ited voluntary motion to this region of the spine, I made use of the following method:

Being kindly assisted by Dr. George W. King, I carefully suspended the patient in the usual manner with a skin-fitting knit-shirt and "dinner-pad" applied, until the patient was made comfortable. While thus suspended it was incidentally determined that, having overcome the reflex muscular spasm, a very considerable amount of articular motion could be effected without causing the least pain or discomfort.

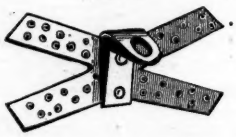
Having applied the first layers of plaster dressing, a head-rest of the form shown in Fig. 5 was placed in position and secured by an additional layer of plaster bandage. The action of this head-rest is the same as that previously figured and used in the treatment of cervical caries, the only difference being that the cervico-trunkal segment is replaced by metallic arms extending over the shoulders and connected with two shafts which pass down and forward under the arms, and are incorporated within the layers of plaster bandages. Four pairs of light steel perforated steps, made for me by Messrs. J. Reynders & Co. (*vide* Fig. 6), with thin sheet-copper arms attached, were next placed in position, one above the other, on the surface of the plaster dressing (*vide* dotted lines, Fig. 4), and secured in place

by a layer of bandage. These steps are for the purpose of retaining the elastic extension bars, presently to be described, in position.

FIG. 5.

Incidentally I wish to state that the relief afforded by suspension was so great in this instance, that within two or three minutes after being placed in the swing our little patient, who had for many nights previous been unable to sleep with any degree of comfort, fell into a sound slumber, from which he did not awake until he was removed from the apparatus to be laid on the air-bed.

FIG. 6.



After time had been allowed for the "setting" of the plaster, the "dinner-pad" was removed and a transverse circumferential division of the jacket

FIG. 7.

made at its smallest part (*vide* Fig. 4). The knit-shirt underneath was not divided.

Four light steel rods, turned up at one end as shown in Fig. 7 and provided with a nut and strong spiral spring, for making *elastic extension*, were placed and secured at their upper and lower ends by passing through the perforations in the projecting portion of the steps that are firmly embeded in the layers of plaster (*vide* Fig. 4).

FIG. 8.

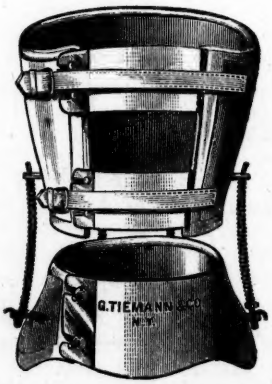
With a wrench, Fig. 8, the nut may be moved up or down, and any desired amount of elastic extending force exerted. The improved position gained by suspension was thus maintained by continuous elastic tension. By moving up the nuts from time to time the kyphotic curve may be still further reduced, without producing the slightest irritation, while the jacket is *in situ*.

The amount of separation of the upper and lower segments of the jacket which it was sometimes found desirable to make exceeds the limits of elasticity on the part of the knit-shirt under the jacket. To obviate this, Mrs. Dawson, of the Brickford Knitting Co., made for me at my suggestion a shirt with an elastic zone, knit with covered rubber thread, opposite the point of division of the plaster encasement.

Should there be any spinal rotation the further advance of which it is desirable to prevent, or even overcome, this may be readily accomplished by means of one or more rubber guys passing from the summit of one steel rod to the base of another.

The testimony of several patients who have previously worn the rigid jacket, as recommended by Prof. Sayre, has thus far been to the effect that the divided one, with elastic extension bars inserted, affords more efficient support and is less irksome. That it is so is evident, for the same reason that a spring carriage is a more comfortable vehicle to ride in than a lumber wagon.

FIG. 9.



We have then for the treatment of the middle and upper dorsal regions, as in the cervical, an apparatus which exerts continuous elastic extension, overcomes reflex muscular spasm, and admits of limited articular motion at the seat of disease.

When the carious inflammation attacks segments of the lower dorsal or lumbar spine, the head-rest can usually be dispensed with and the bulge of the thorax be alone depended upon as the surface against which to make upward pressure.

To make the upper and lower segments of the jacket removable, Messrs. G. Tiemann & Co. have at my suggestion attached metallic clasps to them (*vide* Fig. 9).

The clasps of the upper segment are secured in position by strong bands of elastic webbing. This arrangement permits of the necessary expansion of the thorax with each inspiration, and at the same time does not invalidate the efficiency of the support. The clasp of the lower segment is secured by two nuts.

No. 4 West Twenty-eighth St.

AN INTERESTING CASE OF HERPES IRIS.

By H. W. STELWAGON, M.D.,
physician to the philadelphia dispensary for skin diseases.

In the autumn of last year a case presented itself at the Philadelphia Dispensary for Skin Diseases, which in some of its features was of unusual interest. The patient, a boy, aged 14, was brought for advice concerning a peculiar eruption which had appeared a few days previously. An examination evinced the following: On the breast and upper part of the abdomen were twenty to thirty bright-red annular patches, varying in size from a pin-head to a quarter dollar, with the interior apparently free and of normal color; except the few vesico-papular points, all these patches were perfect rings. In the centre of each ring were the flattened remains of a papular or vesico-papular elevation. The rings were absolutely perfect as such, the band being about one line in width, and apparently made up of adjacent papules, which, however, had so coalesced that the band was one continuous wall. These when pricked emitted a small amount of serous fluid, disclosing their partly vesicular nature. A few of the rings were merely erythematous, devoid of any papular centre, on a level with the surrounding skin, and the color entirely disappearing upon pressure. On the dorsal surface of the arm and forearm were a dozen patches of the same character, except that the vesicular nature was still more evident. On the anterior surface were also a few rings and two or three erythematous spots. On the back, especially between the shoulders, were numerous annular patches. On the legs, anteriorly, were numerous papular points and small rings; also on the inner surface of the thigh anteriorly. This constituted the extent and character of the eruption when first seen, two days after its appearance—erythematous, vesico-papular, and vesicular rings, papular points, and a few erythematous spots.

There was no systemic disturbance, but on the contrary, the boy was in good health, evidently, however, a stranger to the bath. A few days later a second and a third ring had appeared outside of the first; several new ones also had arisen. Thus the case progressed for four weeks, the patches becoming confluent, especially those on the breast, where they so coalesced that there was but one large irregularly outlined patch, the interior showing the fading variegated colors of the original patches. Desiccation of the older rings ensued, as the outer rings appeared, and were covered with a thin scale. Indeed, there was very little crusting, except on the patches on the inner surface of the thigh. Here the vesicles had somewhat enlarged, and had become excoriated, and the process ended in slight crusting.

On the abdomen the patches remained discrete, and were formed of as many as five or six distinct rings, the outermost several inches in diameter, and in various stages of maturation and decadence. Those on the arm, legs, and back underwent the same changes, the patches consisting, however, of only two or three rings, and mostly of an erythematous, or, at the most, of a papular nature.

The colors were variegated and most beautifully shown, particularly in the patches on the abdomen and breast. Instead of seeming to be the result of disease, they appeared as if painted by the artist's brush.

At the end of the fourth week no new patches appeared, and the process gradually declined. However, it was not until more than three months had elapsed that all traces of the eruption had disappeared. As intimated, the disease ended in desquamation, rather than in crusting. There were no subjective symptoms. The case was of interest in several respects: the extent of the eruption; the exemption of the dorsal surface of the hands and feet, parts which are the favorite sites of the disease; the artistic display of color; the varied nature of the eruption; the large patches, composed of as many as six rings; and the duration of the affection.

ANEURISM OF THE ARCH OF THE AORTA SUCCESSFULLY TREATED BY IODIDE OF POTASSIUM.

By BENJAMIN RHETT, M.D.,
of summerville, s. c.

The value of large doses of iodide of patassium in the treatment of aneurism, is so well established that to record the treatment of aneurism of the trunk of any ordinary artery with that salt, would seem a work of supererogation. But I regard the case I am about to relate as sufficiently unique to justify its publication. At the date of treatment, February, 1875, I had never met with a record of a successful case of treatment of aortic aneurism by iodide of potassium; since that time I have seen one case of the abdominal aorta, if I remember aright.

The notes of this case were made at the time of treatment, with a view to future publication, after a sufficient time had elapsed to verify the permanence of cure (if cure it be), but were put aside and forgotten until a few days ago, when I examined the patient for a supposed return of her trouble, but could detect no signs of dilatation or pulsation in the locality of the aneurism.

In February, 1875, I was called to see Mrs. Catharine S., a colored woman of the better class, who seemed to be suffering great distress, partly due to nervous disturbance and partly to pain. She

gave the following account of herself, that fifteen or twenty years before she had an attack of inflammatory rheumatism; that from that time she had been more or less subject to rheumatic pains; that some time previous she had begun to suffer with what she supposed was beating of her heart, pain and numbness in her left shoulder and down her left arm on its inner side, also pain and numbness on left side of her neck and head, and a jarring sensation in the supra- and subclavicular spaces, and that these discomforts interfered with her sleeping. Although fleshy, she was pale, and had an habitually scared expression of face.

Upon stripping her, so as to lay bare the left shoulder and upper part of the thorax, a roundness or bulge at the root of the neck, and between the clavicle and scapula, was very perceptible, and pulsation of a heaving or billowy character in the part was plainly obvious to the sight. This pulsation conveyed to the ear a loud blowing (bruit) in the supra- and subclavicular fossæ, which was synchronous with the pulse at the left wrist.

As her disease had been pronounced by the physician who had charge of the case before it came into my hands, to be one of "heart disease" (so Mrs. S. informed me), I made a careful examination with a view to detect either valvular insufficiency or hypertrophy, but I could find nothing abnormal about the heart sounds; but I must say that these sounds were almost masked by the loud sawing bruit of the aneurism.

After careful investigation and due consideration of all the features of the case, I concluded that Mrs. S. suffered habitually from rheumatic gout, that she also had an aneurism of the arch of the aorta, and that the aortic wall had yielded at that portion where the left carotid and subclavian were given off. My reasons for thinking thus were that the numbness and pain extended not only down the inner portion of the arm, but up the side of the neck and head, and the locality of the aneurismal enlargement indicated this.

Operative interference was clearly out of the question, and although I looked upon any treatment as futile, I determined to try, as a *dernier ressort*, iodide of potassium, given in large doses, with a view to saturation of the blood, and with the very faintest hope, and no expectation, that coagulation in the aneurismal sac might occur, although I well understood that at a few inches from the ventricle the force of the blood current driven with powerful force, and almost direct impact upon the diseased walls, would be almost certain to wash away any coagula that might form within the sac.

The patient was advised to take, and did take, from 75 to 80 grains of iodide of potassium in syrup of sarsaparilla, as a vehicle, daily for six weeks, with decided mitigation of her trouble, but she complained so much of the scrapiness of her throat, and other ill feelings, that a short respite was given her, when she again used the same quantity of the salt for about a month.

Upon my last visit in 1875 an examination was made, when every sign of pulsation had ceased, and the pains in her shoulder, arm, neck, and head had undergone a decided mitigation, although not entirely relieved. Six months after I examined her again, and could detect no pulsation. Over seven years have elapsed, and being summoned to her, for supposed return of her trouble, I took the opportunity to examine again, and can detect no vestiges of the aneurismal bruit or dilatation. Being the subject of rheumatic gout, she suffers from gouty dyspepsia and reflex cardiac trouble, which led her to think that her aneurism was returning. She still complains of some pain and numbness down the inner surface of the arm.

When I took charge of Mrs. S. I found her accustomed to take digitalis, whenever she suffered exacerbations, which occurred from dyspeptic cardiac disturbance. She did this by the advice of her physician, and experienced considerable relief. As I have said, I concluded this cardiac disturbance to be reflex from gastric disorder. As I regarded the increasing the vigor of the heart's contractions by digitalis as not unattended with danger to the integrity of the aneurismal sac, I substituted monobromide of camphor, much vaunted at that time for such ailments, and found it perfectly inert, and Mrs. S. has continued to this day occasionally to use digitalis for this reflex cardiac disturbance, as she states, with advantage.

The result was so unexpected, that I have been at times tempted to doubt the accuracy of my diagnosis, but after carefully reviewing all the facts of the case, I cannot but come to the conclusion that this was a case of aneurism of the arch of the aorta, and that coagulation within the sac, and its subsequent obliteration, has been accomplished by the administration of large doses of iodide of potassium, kept up for a period of three months with a short rest, and that, if I am correct, the fact is worth putting on record.

APHONIA, WITH ABSENCE OF ARYTENOID CARTILAGES AND VOCAL CORDS.

BY F. A. BURRALL, M.D.,
ATTENDING PHYSICIAN TO THE PRESBYTERIAN HOSPITAL, NEW YORK.

P. B., æt. 47, German, single, sailor, admitted July 18. Family history: Father died at the age of 81, mother at 64; causes of death unknown to patient; brothers and sisters living and healthy. Previous history: Patient has always been strong and healthy; fifteen years ago had Panama fever, but recovered entirely. Denies ever having had any venereal disease. His present illness commenced twelve months ago, when he caught cold and commenced to spit up a thick jelly-like sputum. Since then he has lost flesh and strength steadily, and has had night-sweats. He first became aphonic last month; has had pain in the region of the larynx for five months, which pain was increased by swallowing. The appetite is poor, the bowels generally regular.

On admission the patient had the appearance of having been a strong and robust man, but he is now bent and emaciated. He is weak, and seems to have lost all vigor and ambition. Appetite poor, bowels loose. He is probably anæmic, but this

condition is concealed by a decided bronze hue of the skin. The aphonia still persists. Physical examination would indicate the condition known as "fibrous phthisis," there being a general retraction of the chest-walls, dulness over the whole lung, and no moist sounds on auscultation. Ordered quinia, iron, and nucis vomicæ ext. in tonic doses, and good nutritious diet.

July 20.—The above drugs were discontinued, and in their place ordered spts. frumenti in a bitter infusion ℥ss t. i. d., also elix. ferri. phosp., quinia et strychnia, the dose to be gradually increased until the influence of the strychnia is apparent.

31st.—Since the last note the patient has been improving slightly, and his whisper seems a little stronger; the above preparations have not been used in large doses, as the system could not tolerate them.

August 1.—The patient's throat was to-day examined with a laryngoscope. At this time he told of spitting up five or six minute bodies, which he compared to small pieces of square matches half an inch long. The examination showed that the epiglottis presented a peculiar appearance, being, as it were, folded upon itself or curled up laterally. The vocal cords and arytenoid cartilages were missing, and to this absence of organs his loss of voice is ascribed.

5th.—Patient's throat was again examined as above, and the same state of affairs confirmed.

18th.—Since last note the patient has gradually improved in his general health, but his local condition remains unaltered.

Aphonia may depend upon a variety of causes, such as hysteria, syphilis, the presence of a laryngeal tumor, swelling of the arytenoid cartilages, paralysis of the muscles attached to the chordæ vocales, and a number of other factors which prevent proper approximation of the vocal cords. With the laryngoscope the diagnosis of the cause is as a rule easy, since the larynx lies exposed before us and we examine its condition as we do that of other visible organs. Without it, the recognition of laryngeal disease is like guessing at the contents of a covered box, and with it, the cover is removed. The instrument is, however, regarded too much as the special property of the laryngologist, whereas it is, next to the thermometer, one of the most important instruments of precision which special study has shown to be necessary for general use, since while it often may be, and too often is, dispensed with, it is, for the proper diagnosis of laryngeal disorders, quite indispensable. With a fair amount of perseverance almost any practitioner may learn to use it, and the labor is amply repaid by the ready aid which it often gives.

The above case illustrates the usefulness of the laryngeal mirror. Until the loss of the organs on which speech depends was demonstrated, it was impossible to know the reason of the aphonia, but that being known, the futility of treatment became apparent. Doubtless those who confine their treatment to throat diseases alone, acquire superior dexterity and knowledge, which have their great use in certain cases, but the idea that there are great difficulties in the use of the instrument leads many to preclude themselves from a means of information which it is not an exaggeration to say should be at the service of all general practitioners.

48 West Seventeenth St.

MEDICAL PROGRESS.

The Treatment of Polydactylism.—One or more supernumerary digits, or polydactylism, is one of the most frequent of congenital deformities. It presents, however, considerable variety in its nature. In some cases there is only a mere rudiment of a finger or toe, consisting of skin and fibro-cellular tissue with usually a small piece of cartilage in the centre, adherent to one of the fingers, and more common on the inner than the outer side of the hand. In some cases the digit is perfectly formed, and articulates either with the shaft of a phalanx or a metacarpal bone of another digit, sometimes in common with the normal finger, with a broad head of a metacarpal bone, or in still rarer instances, upon one extremity of a bifurcated metacarpal or metatarsal bone. Cases are also met with in which the additional finger or toe has been united along its whole length with the next digit—a combination of polydactylism and webbed finger. Where the digit is a mere rudiment, it is always an unsightly and useless appendage, and should be removed at quite an early age by division of the pedicle with the ligature, knife, or, as recommended by M. Polaillon, the galvanic cautery. Where, however, the digit is fully formed, and supplied with muscles, so that it shares in the movements of its fellows, it becomes a question whether it should be removed, the answer to which depends upon the utility of the supernumerary digit and the extent of the deformity occasioned by it. The removal of these digits is a perfectly simple operation; but when they articulate with a metacarpal bone within the same capsule as the normal digit, there is a danger of exciting inflammation in this joint, and of so causing anchylosis. To obviate this M. Sédillot advised that in such cases the amputation should be made through the base of the digit to be removed, so as to leave the articulation intact. This plan has been generally adopted of late years, but there seem to be reasons for modifying Sédillot's advice. In the first place, we are now enabled to open healthy joints without exciting inflammation or running the risk of anchylosis. And in at least three cases the base of the digit left behind has subsequently grown, and in part reproduced the deformity. M. Chrétien, to whom such a case has recently occurred, has suggested that the explanation of this is that the base of the phalanx is ossified from a separate epiphysial centre, and that when the amputation is so performed as to leave the epiphysis unimpaired, it may continue its independent development. In the rare cases of a bifid metacarpal bone, the amputation should be made at the point where the shaft of the bone bifurcates. There is, of course, less reason for undertaking any of these operations in the foot than in the hand.—*Lancet*, September 23, 1882.

Abdominal Typhus in Children.—Dr. Röth (*Arch. f. Kinderheilk.*) reports his observation on eighty-two cases of this disease in children under fifteen years of age; twenty-nine of these were in the children's hospital, and fifty-three at the poly-clinic at Heidelberg. Under one year of age, there was one child, nine from two to five years, thirty from six to ten, and forty-two from eleven to fifteen. Of the eighty-two cases, eight ended fatally, and two others

died from relapses. In a minority of the cases, the disease was ushered in by a chill, after which the temperature rapidly increased. In the majority the incubation stage lasted from three to seven days, then followed, as a rule, febris continua remittens, which lasted from six to twenty-five days, with evening rise of temperature to from 39.5° to 40°. Finally there was febris intermittens, lasting from four to five days. The spleen was enlarged in sixty-two cases, but there was no enlargement discoverable in some of the most severe cases. The roseola appeared between the sixth and eleventh day and was tolerably constant. In some it was very slight and transient, continuing scarcely a day. In others it failed wholly. In forty-three cases its presence was doubtful; in thirty-seven it was unmistakably present. In forty-six, bronchial catarrh was a complication; in seven, bronchitis and broncho-pneumonia. There were eight relapses, five slight, and three severe, of the latter, two died.—*Physician and Surgeon*, October, 1882.

EXTRA-PERITONEAL NEPHRECTOMY.—Under this title DR. L. BRICHETTI reports an interesting series of experiments performed on dogs. All his cases (the number is not stated) recovered promptly; the author attributes his success to his precaution in not placing a clamp on the pedicle of the kidney, and to having ligated the vessels and ureter separately. His cases of experimental nephrotomy have been equally successful.

Brichetti advises the incision of the kidney, instead of nephrectomy, as advised by Billroth, in cases of suppuration of the kidney, such as follows gunshot wounds. Drainage and antiseptic injections will then constitute all the necessary after-treatment.

Nephrectomy should be reserved for renal tumors of a malignant character.—*L' Union Médicale*, September 23, 1882.

ETIOLOGY OF HEMORRHAGIC VARIOLA.—At the Rochelle Congress (*Gaz. des Hôp.*, September 5) DR. PETIT read a paper on this subject, in which he came to the conclusion that the visceral alterations found at the autopsy of individuals dying of it should really be regarded as the *causes*, rather than the effects, of this form of smallpox. The same may be said of other forms (usually termed malignant) of this and some other affections. It is necessary, however, to distinguish between two forms of the alterations observed, viz., those which are of old date, as degeneration, steatosis, sclerosis, etc., and those of recent origin, as interstitial hemorrhages. Visceral lesions, whether causes or effects of a morbid condition of the economy, act on variola as they do on traumatic lesions, by imparting modifications to the blood or tissues, and especially the capillaries. Among the subjects predisposed to hemorrhagic variola may be ranged those who have already suffered from diseases of the liver, spleen, kidneys, heart, and perhaps lungs, or from affections capable of producing serious change in these viscera, as rheumatism, scarlatina, paludism, alcoholism, pregnancy, etc. Although we may not be able to point to any therapeutical advantage derivable from these etiological conclusions, they may aid our prognosis when individuals, the subjects of these conditions, contract smallpox. Such cases will very probably exhibit the hemorrhagic form, or even some other still more serious one.—*Med. Times and Gaz.*, September 23, 1882.

MILK-POWDER IN GASTRIC AFFECTIONS.—DR. DEBOVE, in a communication to the Paris Hospital Medical Society (*Gaz. Hebdomadaire*, August 25), observes that the milk regimen, which is so indispensable in affections of the stomach, and especially simple ulcer, speedily becomes so disgusting to these patients that it has to be left off. This serious inconvenience, however, may be remedied by the employment of the œsophageal tube, now used for feeding phthisical patients. But by this only a litre of milk can be introduced at a time, so that it would require to be evaporated six times in order to introduce the six litres, which is the mean quantity required for the subjects of *ulcus rotundum*. To avoid this frequent introduction of the tube, Dr. Debove has had skimmed milk evaporated (cream being but slightly digestible), and the residue reduced to a fine powder. If this be dissolved in warm milk, two or three litres of milk may be injected in the same volume as a single litre. It is possible that this milk powder, which furnishes excellent results in gastric affection, may also prove very useful in Bright's disease, cardiac affections, and all cases in which a milk regimen is employed. About a litre of pure milk is represented by 120 grammes of the powder. Dr. Dujardin-Beaumetz observed that in feeding the subjects of phthisis with the tube he has obtained excellent results from a mixture of powder of meat, powder of blood, and powder of milk. As powder of blood is not very digestible, he only adds a small proportion of that as a ferruginous principle.—*Med. Times and Gaz.*, September 23, 1882.

TUBERCULOSIS OF THE TONGUE.—DR. THOMAYER, of Prague, describes three cases of tubercular ulceration of the tongue. In one a wide fissure existed about the middle of the dorsum, with yellow-coated base, and prominent coarse tubercular nodules at its margins. In both lungs there was widespread tubercular disease. In the second case the ulcer occupied the right half of the tip of the organ, and was characterized by numerous firm granulations in part of its base, the rest being covered by a thick yellow layer; the margins of the ulcer were also firm, beset with gray and yellow granulations. The ulcer bled slightly, and was not benefited by treatment. The third case was similar, only the ulcer was seated on the frænum. It was treated by the topical application of chloride of zinc, which produces only temporary benefit in the breaking down of the nodules. Microscopical examination was made of the diseased organ in the two fatal cases. The ulceration had destroyed the mucous membrane and submucous tissue, and the base was formed by a thick layer of small rounded cells, intersected here and there by muscular bundles. Beneath this layer, there spread into the intermuscular spaces masses of similar cells, which, under high powers, were found to consist partly of giant-cells, and to be separated by the delicate stroma of tubercle. Some isolated tubercles were found deep in the substance of the organ. The muscular fibres themselves seemed invaded by the cell-growth, which was not limited to the intermuscular spaces. There was proliferation of muscle nuclei and of endothelium of the bloodvessels. Dr. Thomayer says that the extent of the lesion demonstrates the futility of treating these ulcers by caustics, and points to the advisability of excision.—*Lancet*, September 23, 1882.

AMPUTATION OF THE SHOULDER.—In a case of osteosarcoma of the scapula, M. DEPRÈS has conceived and executed with success the plan of amputating the shoulder, that is to say, of removing the arm with the scapula and a portion of the clavicle. The dangers of this operation lie, 1st, in the great loss of venous blood; and 2d, in the entrance of air into the axillary vein; but these accidents are not infallibly fatal.

In the case operated on, syncope and foaming at the mouth occurred, but the patient recovered; the wound was healed in two months.—*Rev. Scientifique*, September 23, 1882.

A CASE OF SPONTANEOUS RUPTURE OF THE SPLEEN.—DR. F. M. CALKINS reports the case of a woman, aged 45, who, being in usual health, was awakened while in bed, at about 1 o'clock in the morning, by a severe pain in the abdomen. She described the pain as tearing, as if something was giving way. Dr. Calkins was not called until 12 o'clock noon, and when he reached the bedside he found the patient pulseless and in a complete state of collapse. She rapidly sank and died one hour after his arrival. From the previous history, it appears that thirteen years previous to her death she had suffered severely from malarial fever, which resulted in an enlarged spleen. The splenic enlargement increased in growth for about three years, when it apparently ceased to increase in size. The tumor, as examined through the abdominal walls, was located in the region about midway within the left lumbar and inguinal spaces, and from its position had been previously diagnosed by some as ovarian tumor. The enlargement of late years had caused the patient but little trouble or anxiety. It sometimes at long intervals gave her a few hours of severe pain, but passing off left her apparently well.

A post-mortem examination was made twenty-four hours after death. Upon opening the peritoneal cavity a large quantity of blood was found, which, being removed and weighed, amounted to six and one-half pounds. A large blood clot was discovered in the left inguinal region, and, in attempting its removal, it was found to be attached to the lower and convex surface of the displaced spleen. The spleen was lying in the lower lumbar and upper inguinal regions. Upon its removal, a rent or tear was found upon its inferior and convex surface, measuring in length five and one-half inches. Its weight was two pounds and ten ounces, about six times its average weight. No microscopal examination of its tissue was made. Its peritoneal covering was, by inflammatory adhesions, attached to the abdominal wall showing previous local peritonitis. The other abdominal viscera appeared normal. The general appearance of the spleen did not indicate great softening, and its rupture was, in Dr, Calkins' judgment, due to over-distention of the organ by blood engorgement.—*Michigan Med. News*, Sept. 25, 1882.

OSTEOTOMY AND TARSOTOMY IN THE TREATMENT OF CONGENITAL CLUB-FOOT.—At the meeting of the Académie de Médecine, held September 19, M. JULES GUÉRIN read a paper on this subject, of which the following are the conclusions:

1. Tarsotomy, the ablation and resection of the tarsus to remedy club-foot, even when of the most serious character, is an operation which should be discarded as one of the most unjustifiable abuses of surgery.

2. This method results in a dangerous and useless mutilation of the foot, and should always be supplanted by the more scientific methods of tenotomy, syndesmotony, massage, and orthopædic apparatus.

3. Even in cases of inveterate club-foot in the adult this method is not preferable to the attempt to overcome the deformity by appropriate apparatus.—*L' Union Médicale*, September 21, 1882.

FERRUGINOUS LIVERS.—The presence of an excess of iron in the livers of anæmic patients is a curious fact, of which several instances have been described in Germany. One case was described by Stahel: and Lindenlang, in the liver of a patient with purpura, found a considerable excess of iron. Marchand has lately described the liver of a phthisical patient, aged sixty years, which presented an unusual brownish-red color associated with evident cirrhosis. The microscope showed an infiltration of the hepatic cells and of the interstitial connective tissue by pigmentary corpuscles, which gave the characteristic test for iron with yellow ferrocyanide. A chemical analysis showed that the ashes contained not less than 30 per cent. of iron. It has been supposed that the excess of iron is the result of an abnormal destruction of red blood-corpuscles in the organ, but it is open to question whether it is more than the result of the free administration of iron by the mouth.—*Lancet*, September 23, 1882.

AN UNDESCRIBED DISEASE OF INFANTS.—DR. RIGA (*Movimento Med. Chir.*) has observed a pernicious disease of the mucous membrane of the child's mouth. It consists of the formation of a false membrane between the end of the tongue and the frænum. The membrane is round and small. Children, in whose mouth this appears, lose strength rapidly, refuse to nurse, and ninety per cent. of them die. The disease has been observed only in summer and is always associated with intestinal catarrh. It lasts from two to eight weeks. It is found in children only during the first dentition, it is not contagious, but appears to be infectious. In the Terra di Levoro the disease has been endemic for sixty or seventy years. During the past decade, there has been no diphtheria in that region. No scientific study of the disease or membrane has yet been made.—*Physician and Surgeon*, Oct. 1882.

THE ALLEGED DIGESTIVE CAPABILITIES OF THE WHITE BLOOD-CORPUSCLES.—MR. E. A. SCHAFFER has made a number of experiments to settle this point, chiefly with the white corpuscles of the newt, and these have been tested with particles of proteid, of fat, and of starch, which in every case were suspended in salt solution. The proteid particles were in the shape of torulæ of yeast (which were presented to the corpuscles either in the living condition or after having been killed by boiling); the fat was in the shape of milk-globules; and the starch employed was obtained by washing the dough of wheaten flour with salt solution, and, after allowing time for the coarser granules to subside, taking a drop of the supernatant fluid containing the finest particles in suspension.

The general results of the experiments may here be briefly enumerated. In no case observed, although the period of observation extended in some instances to one or even two days, and was never less than five hours, did any particle entirely disappear by solution within the corpuscle. In some cases, the particles became surrounded by a zone of clear fluid, and, included in this, were moved about by the streaming of the protoplasm to different parts of the corpuscle; but, to all appearance, they remained unaltered. Exception may perhaps be made for the yeast torulæ, in which, in many instances, the distinction between the protoplasm and its included vacuole became obscured, but it was not possible to affirm that this was due to anything else than the lessened distinctness with which the torulæ could be seen in the irregular corpuscle. In the case of starch-granules, it was found that however minute they might be, and however long included, the addition of iodine solution always produced in them the usual intense blue color. It was noted, however, that the protoplasm of white corpuscles, which had retained many starch-granules, tended to be more deeply tinged by iodine than that of others which contained no starch, whence perhaps it may be inferred that a small amount of starch has undergone transformation into dextrine. On the other hand, it was not found that white corpuscles, which had been abundantly fed with starch, exhibited, on subsequent treatment with iodine, more of the claret-tinted protrusions indicative of glycogen than others which had not contained any starch-granules.

It is clear, from the generally negative character of the results obtained, that the assumption of the possession by indifferent protoplasm, and especially by that of the white corpuscle, of distinct digestive powers, rests upon an entirely insufficient basis of fact; and, although it is scarcely possible to prove that no change whatever occurs in the included organic particles, it may yet be affirmed that, if any change is produced, it is so slight in amount as to be altogether beyond the range of our present means of observation. Moreover, considering that the white corpuscle inhabits a medium which contains in solution all the elements necessary for its nutrition, there is, *à priori*, an improbability of its possessing the means of reducing them from the solid to the fluid condition.—*British Medical Journal*, September 23, 1882.

HYALINE DEGENERATION.—In the last number of Virchow's *Archiv*, DR. MAX VALLAT described in detail the process of hyaline or fibrinous degeneration of tubercular formations—a change which has only received full attention of late years, although it is not infrequent in other structures, especially in the wall of arteries. In tubercles, it is best observed in those which occur in the spleen, lymphatic glands, and liver, and is to be regarded as an early stage of caseous degeneration. Dr. Vallat concludes that it is formed from the reticulum of the peripheral zone of the tubercles, and also from the trabecular tissue of the spleen and lymphatic glands, the bands becoming thickened, homogeneous, and glistening, whilst the spaces between the original fibres become converted into narrow channels in which only the nuclei of the cells that formerly existed there remain. In the tubercle it also replaces the epithelioid and giant cells, the former appearing to be converted into homogenous non-nucleated masses. The precise share taken by the giant cells in the formation is unknown. The channels left between the degenerated and swollen bands allow of the passage of fluid and pigment particles into the interior of the tubercle. In caseating the material breaks up into a finely granular mass, and is often found to be beset with nuclei, either the relics of previously existing cells or immigrants from surrounding vessels.—*Lancet*, September 23, 1882.

CONTRIBUTIONS TO THE CHEMISTRY OF BILE.—The remarkable behavior of the galls of Tübingen cattle with ether and hydrochloric acid, has already been noticed by G. HÜFNER, (*Journ. Chem. Soc.*, August, 1882). It was thought that a study of the relative quantities of glycocholic and taurocholic acids in different samples of bile would explain why some crystallized at once on addition of ether and hydrochloric acid, and other kinds refused to do so. To this end, ten samples of bile were analyzed, six of which gave a rapid crystallization of glycocholic acid, one a weak one, and three none at all; it was found that the quantities of taurocholic and glycocholic acids respectively were as one to five in the samples from which the latter acid crystallized rapidly, and about equal in those where no crystallization at all occurred. That this result had nothing to do with the question as to the absolute increase or decrease in quantity of each acid in the bile was shown by the fact that dilution in the one case did not put a stop to crystallization, whilst in the other concentration did not induce it.

Again, experiments with mixtures of the pure salts of taurocholic and glycocholic acids showed that the relative proportion of two acids present in solution together had very little, if any, effect on the crystallization of the latter. Hence those biles in which there is no appearance of crystallization of glycocholic acid on addition of ether and hydrochloric acid, must contain some other body, the presence of which is possibly dependent on the nature of the animal's diet, and which prevents the crystallization of glycocholic acid under those conditions.—*American Journal of Pharmacy*, Oct. 1882.

VACCINE CHARBONNEUX.—From the subjoined report it will be seen that Dr. Klein has arrived at conclusions—based upon comparatively few experiments, it is true—adverse to the general adoption in this country of Pasteur's proposal to inoculate cattle with anthrax as a prophylactic measure against that disastrous disease. The report has been communicated to the Veterinary Department of the Privy Council by the Local Government Board, and is published in the current number of the *Veterinarian*:

"Vaccin charbonneux is to be obtained, and is announced to be obtainable (in the *Farmer*), from M. Bontroux, agent of M. Pasteur in Paris (applicants to M. Pasteur are referred to M. Bontroux), and, as I happen to know, it is brought over and sold and used in considerable quantities. The 'vaccin' is sold in tubes (each containing enough lymph for the inoculation of one hundred sheep or fifty cattle) as 'premier vaccin charbonneux' and as 'deuxième vaccin charbonneux.' The 'premier vaccin,' according to the printed directions accompanying each lot, is inoculated first; after a lapse of twelve to fifteen days the 'deuxième vaccin' is used in the same manner. The animals thus twice inoculated are supposed to immune against fatal anthrax. I have obtained through two independent sources two lots of this vaccin charbonneux (premier and deuxième), and have tested them by experiments. The results of these experiments enable me to say—(*a*) animals inoculated with this 'vaccin' (premier and deuxième) are not made immune against fatal anthrax; and (*b*) both the first and second vaccin may produce fatal anthrax. The following facts prove these propositions:

Experiments with Lot A.—Inoculated with 'premier vaccin,' two sheep, two guinea-pigs, and two mice; no change in any animal. Inoculated with 'deuxième vaccin,' the above two sheep and the above two guinea-pigs. One of these sheep showed rise of temperature, and falling off in food for the first two days after this second inoculation, but was all right again after three days. The two guinea-pigs were dead of typical anthrax within forty-eight hours. The above mice were inoculated with the blood of one of these guinea-pigs. Both mice were dead of typical anthrax within forty-eight hours. The two sheep having been inoculated with the premier and deuxième vaccin ought to have been immune against fatal anthrax. Now see what happened: according to M. Pasteur, the *Bacillus anthracis* of blood of an animal dead of anthrax, when cultivated at 42°–43° C. for twelve days, loses all virulence and becomes thereby converted into 'vaccin.' I had grown the *Bacillus anthracis* of blood of a guinea-pig dead of anthrax at a temperatnre of 42°–43° C. for *twenty-one days*, and with this culture I inoculated the above two sheep. The result was that both animals were dead of typical anthrax within forty-eight hours.

Experiments with Lot B.—Inoculated with 'premier vaccin' four guinea-pigs and six mice. Within forty-eight hours three of the guinea-pigs and three of the mice were dead of typical anthrax. My method of using the fluids for inoculation absolutely precludes any accidental contamination, and hence these results must be accepted as perfectly reliable. This country is comparatively free from anthrax, and therefore the introduction and use of this so-called 'vaccin charbonneux' seems to me most dangerous, and capable of producing incalculable mischief."—*Lancet*, September 23, 1882.

The Digestion of Drugs.—Therapeutists have paid little attention to the changes which drugs, administered by the mouth, undergo in the digestive organs before they are absorbed, except in the case of those inorganic substances which are given for their direct effect on the gastric mucous membrane. The practitioner gives other drugs, for the most part, without considering how far they may be altered before they leave the alimentary canal. He is guided by what is known of their subsequent action on the system and of their effect in disease, and he is no doubt thus guided, in the main, correctly. Nevertheless, the subject is not an unimportant one, since the influence of the digestive ferments on drugs must, or rather should, determine the time of their administration in relation to the process of digestion. At present, careful attention is paid to this point in choosing the time at which to administer those therapeutic agents which are designed to have a direct action on the stomach, but, as regards others, it is not considered, except in so far as it influences the rapidity of their absorption. No facts, indeed, have hitherto been available for the guidance of the practitioner on this important subject. It is only since the processes for artificial digestion have been perfected that it has become possible to ascertain such facts, and the subject is certainly worthy of the attention of the pharmacological experimentalist.

These remarks are suggested by a series of experiments of this nature, although with a different object, which were described at the recent meeting of the Pharmaceutical Conference by Mr. George Brownen. This gentleman has endeavored to ascertain to what extent the digestive ferments may be made available for the production of preparations of various drugs. The question necessarily involved that of the extent to which their active principles suffered in the process. The constituents of rhubarb were found to be extracted, with remarkable completeness, by treating an infusion first with an acid preparation of pepsin, and then, after neutralization, with an alkaline solution of pancreatin. The former extracted 47 per cent. of the rhubarb, and the latter 13 per cent. more, leaving only a residue of cellulose and earthy salts. Infusion of calumba, prepared with boiling water, and passed through a similar process of digestion, gave somewhat similar results; only spongy cellulose, associated with a trace of berberia, was left. Cinchona and opium, on the other hand, behaved differently; the gummy and extractive matters were dissolved and retained in solution, but a considerable quantity of the alkaloids was left behind. About half the cinchona and two-thirds of the opium were dissolved. The cinchona tannin was destroyed in the process of digestion, and failed to precipitate gelatine. The arabin of gum acacia remained apparently unaffected by the process, but a peptonizing change was wrought upon some other constituent of gum, possibly a nitrogenous impurity. The mucilages obtained from Irish and Iceland moss were also tested, since they hold an intermediate position between foods and medicines. The alkaline extract of the pancreas seemed to exert very little action on Irish moss, although the proteolytic ferment of the pancreas, extracted with acids, soon destroyed the viscidity of the mucilage, and divided the jelly into soluble and insoluble portions. Iceland moss behaved somewhat differently. A jelly of it became flocculent when acted on by the gastric ferment, and under the influence of pancreatic extract deposited yellowish white flakes, consisting of non-crystalline masses, possibly peptic acid.

Of more direct interest, however, is the action of the digestive ferments upon definite organic compounds. The acidulated extract of the gastric juice decomposed a watery solution of salicin very slowly and imperfectly, but the pancreatic ferment split up the salicin into saligenin and glucose. Jalapin remained intact after digestion with the pepsin solution, but pancreatic digestion withdrew from it a copper-reducing substance. Neither process had any influence upon santonin. A solution of tannin, treated with the acid pepsin solution, became turbid, but the turbidity disappeared after the addition of a little more hydrochloric acid, and prolonged digestion seemed to have no further influence. The pancreatic extract, however, quickly rendered tannic acid incapable of precipitating gelatine, as it had been found to do in the experiments with cinchona bark, apparently by converting it into gallic acid. The experiments of Mr. Brownen go no further, but he has evidently opened a field of considerable importance, in which other observations will probably yield results of considerable practical value to physicians as well as to pharmacists.—*Lancet*, Sept. 23, 1882.

Iodoform in Purulent Ophthalmia.—Mr. W. J. Milles, Senior House Surgeon at Moorfield, reports (*Royal London Ophthalmic Hospital Reports*, August, 1882) that he has employed this drug for some time past in purulent affections of the conjunctiva and cornea, and he believes that, in suitable cases, it is of very great service.

The best method of using it is either in a very fine powder, when care should be taken that it is ground down very thoroughly; or in the form of ointment of variable strength, the usual form being gr. xxx to ℥j of vaseline, the stronger form to ℥j to ℥j. The importance of iodoform in ophthalmic practice is that it produces less pain and irritation than any other antiseptic that he is acquainted with; that it can be used in a concentrated form; and that it volatilizes very slowly.

Eighteen months ago he gave it in an extended trial in ophthalmia neonatorum, and came to the opinion that it was only useful when one could treat the disease from the commencement (within the first two or three days). In the later stages, when there were thickening of the lids and a granular condition of the conjunctiva, he found that its effects in stopping the purulent discharge were very slight. He was more pleased with iodoform in the treatment of gonorrhœal ophthalmia, possibly from the fact that the patients suffering from this affection were more immediately under control. The treatment was combined with the use of boracic acid lotion, or a solution of perchloride of mercury (gr. i to ℥j), and, of course, a constant application of iced compresses. In a number of cases the acuteness of the swelling and the profuse discharge rapidly diminished, and the cornea was saved under this form of treatment.

Having seen the rapidity with which an indolent ulcer of the leg changes its character under the use of iodoform, he was led to try its effect on the slowly spreading infiltrated ulcer of the cornea. It quite answered his expectations. In several cases (though other treatment had been tried without effect), with the constant application of iodoform, the ulcers ceased to spread, the infiltration of their edges rapidly disappeared, and a rapid recovery ensued.

Excision of Primary Syphilitic Induration.—Dr. Tomaschewsky, writing of an investigation which he had conducted in Prof. Tarnowsky's clinic (*Petersb. Med. Woch.*, September 9) to ascertain what effect incision of primary syphilitic induration exerts upon the appearance and course of secondary symptoms, states as the result of trials made in fifty-eight cases in which excision was performed at the tenth to the fourteenth day of the disease, that these were nowise influenced,

the course of the disease continuing just as if no excision had been made.—*Med. Times and Gaz.*, September 23, 1882.

THE MODIFICATIONS IN THE CALIBRE OF BLOOD-VESSELS IN AMPUTATED LIMBS.—From a careful examination of the calibre of the bloodvessels in stumps, M. SEGOND has found:

1. That after amputation the calibre of arteries and veins of the limb subjected to operation nearly always decreases. This is even observed when the amputated portion represents, as in the case of amputation of the hand or foot, only a small portion of the limb.

2. The extent of this diminution in calibre is not limited to the stump itself, but exists in the entirety of the mutilated member.

3. The reduction in calibre can not be attributed to atrophy of the limb, as it occurs before the limb undergoes atrophy.

4. The primitive reduction in calibre of the vessels is probably an active cause in the production of atrophy in limbs of which a portion has been amputated.—*Revue de Chirurgie*, September, 1882.

THE SUTURE OF DIVIDED FLEXOR TENDONS OF THE HAND.—DR. JOHN CHAMBERS reports two cases of division of flexor tendons of the hand. One was left to nature and resulted in a disabled finger; the other was sutured and a cure was obtained. He gives the following directions as to details in operating:

1. Before using the knife, pass a fine director into the sheath as a guide to the incisions; otherwise there will be difficulty in finding it, as it is in a collapsed state from retraction of the tendon. The sheath must be slightly incised at the proximal and distal ends to allow of sufficient exposure of the tendon to pass the suture.

2. Use a fine needle with a large eye, entering it a quarter of an inch from the ends of the tendon, which should be merely approximated. If the ends are drawn closely together, the tension may cause the tendon to split.

3. Catgut, well carbolized, as made in Edinburgh, is preferable to other material for sutures. The ends should be cut off short.

4. Strict antisepticism is desirable to secure the best results. While suppuration occured in the case reported, it was, he thinks, owing to the fact that in closing the external wound free drainage was not sufficiently provided for. As a result, the secretion from the irritated synovial sheath was free, giving rise to tension, exciting inflammation, and marring the normal reparative process. It is essential to the success of the antiseptic method in all operations, that drainage be well attended to.

5. Keep the finger or thumb, as the case may be, moderately flexed, with the hand secured to a well-padded splint by a lightly applied bandage.

6. Commence passive motion as soon as the external wound is healed.—*Indiana Med. Journ.*, Sept. 1882.

THE NATURE OF RIGOR MORTIS.—The question of the cause of the different kinds of rigor in the muscle has been discussed anew, this time by MISS SCHIPILOFF (*Centr. f. d. med. Wiss.*, 1882, p. 291). She sought an analogy between the changes of myosin in salt solutions and those of the myosin in the muscle. Particularly interesting are the comparisons between the *rigor mortis* and the *rigor caloris*. Myosin, which is precipitated from its solutions by acids and by a small quantity of distilled water, retains its chemical character, and does not change into syntonin nor into the insoluble modification; hence fresh muscles and those which have become spontaneously rigid must contain the same amount of myosin (if its changes cause rigor), which is found by experiment to be true. Again, myosin is precipitated from its solutions by heat, but the body thus obtained is no longer myosin, and is completely insoluble in NH_4Cl, hence the *rigor caloris* must be totally different from the normal spontaneous *rigor mortis*. "The *rigor mortis* depends upon a temporary precipitation of chemically unaltered myosin from its semi-liquid condition in the muscle plasma; this precipitation is caused by the post-mortal development of acidity, whose further increase brings about a resolution of the rigor in muscular tissues which have not yet become putrefied."—*Boston Med. and Surg. Journ.*, September 28, 1882.

MUSCULAR ATROPHY FOLLOWING INJURY TO JOINTS.—A patient (male, aged twenty-three) came under M. CHARCOT'S observation with the following history: A year before, he had sustained a slight injury to his right knee by falling, but had walked for some distance directly afterwards. A trifling swelling of the joint supervened, and lasted for a few days; but the loss of power in that leg was quite out of proportion to the apparent amount of joint-trouble, and did not improve when this latter quite passed off. When he came to the hospital a year later the thigh was obviously wasted in front; the quadriceps femoris did not respond to the induced current, nor to a strong constant current. It was clear, therefore, that there was no "degenerative" atrophy such as occurs in infantile paralysis (when a muscle does not respond to a strong induced current, but responds unduly to a weak constant current, it is said to exhibit the "degenerative" reaction). It should be noted, however, that the rectus femoris and vastus internus (the vastus externus had shown some reaction to the other forms of electricity) responded to the influence of static electricity, and that a blow on the rectus femoris was followed by contraction. The knee phenomenon was present, and excessive on both sides. There was no ankle-clonus on either side. M. Charcot lays great stress upon two points: 1. There is no necessary relation between the intensity of the articular lesion, and that of the paralytic and atrophic phenomena. 2. In cases of this kind it is the extensor muscles which suffer almost, if not quite, exclusively. The following is the mode by which M. Charcot would seek to explain these cases: "The joint-lesion has, by means of the irritated articular nerves, reacted on the spinal centre, aad there it modifies the centres whence the motor nerves, and the nerves which regulate the nutrition of the muscles, arise. There must exist in the spinal cord a more or less direct relation between the cells belonging to the articular centripetal nerves, and those of the motor and atrophic nerves of the extensors, since the result is always constant, viz., that on them, or mostly so, the atrophy falls. . . . No other theory satisfies the conditions so well; and we are reduced to admit a secondary spinal affection, in consequence of which the paralysis and atrophy are set up. . . . But what is this modification of the spinal centre? It is not a profound modification of the cells of the anterior cornua, that would be an infantile paralysis. We must, then, have to deal only with a sort of inertia, with a stupor of the cell element." To explain the exaggerated knee phenomena, he supposes that there is a morbid state of exaggerated reflex excitation in the whole extent of the spinal cord outside the area which he has already assumed to be in a state of torpor. M. Charcot would explain in the same way the paralysis and atrophy which are found in chronic articular affections, *e. g.*, chronic rheumatism. He notes that in these cases also the extensors are especially liable to be affected, and that the so-called "tendon reflexes" are in excess.—*Med. Times and Gaz.*, September 23, 1882.

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SATURDAY, OCTOBER 14, 1882.

THE PHYSICAL EDUCATION OF FEMALE COLLEGE-STUDENTS.

A FEW days since, there fell under our eyes a circular issued by the "Association of Collegiate Alumnæ," on the subject of Physical Education in Colleges for Women.

In spite of the presumed editorial omniscience, we must plead previous ignorance of the very existence of such an association. It is a "Yankee notion," very evidently, for, though graduated from eight different colleges, east and west, eight of the nine officers reside in or near Boston. Nine colleges are represented in the association, viz.: Vassar, Wellesley, Smith, Oberlin, Cornell, Michigan, Wisconsin, Wesleyan, and Boston. If the association does as good work in other directions as is done in the little four-page pamphlet before us, it has an unchallenged right to exist. A table is first presented, showing the status of physical education in these nine colleges. Lectures on physiology are given in all but Wellesley—an omission which the authorities there should promptly remedy. Only three have lectures on hygiene, an error equally grave, especially when the teacher of physiology could so readily combine the teaching of hygiene with that of its handmaid. All have gymnasia except Michigan and Boston. Vassar, Smith, and Wellesley alone have calisthenics. Not one has any athletic sports proper, or athletic associations, or any definite course of physical education. Vassar and Wellesley alone require one hour of physical exercise daily, and Wellesley alone requires a certain standard of health for admission.

On the basis of these facts, the association in a few plain, forcible, and practical paragraphs, urges certain suggestions upon the parents, the college authorities, and the college students. Parents are cautioned against errors in the pre-collegiate days of their daughters, as to social life, sleep, food, clothing, exercise, etc. College authorities are urged to provide systematic courses for physical training, with requirements as to a standard of health, before entering college, and as to exercise during the college course; to establish lectureships on physiology, hygiene, heredity, gymnastics, sanitation, etc.; and to remedy existing defects in ventilation, and other sanitary requirements in college buildings. The students are urged to take proper care of their health, and the means thereto are briefly indicated. The association hopes to publish a series of short practical monographs on suitable subjects, at some future time.

If the plans of the Association are realized to any great extent, the boys will have to look to their laurels, lest the girls outstrip them in health, and possibly in some of their athletic acquirements.

It is a capital work which the Association has begun. Besides the nine colleges composing it, there are a number of other colleges for women, and all over the land a host of private and public schools, which will profit by any substantial progress they may make. We hear much ado about the deterioration of the race in physical vigor. Happily, however, there is a counter-current very strongly developed, too, among our educated classes towards a more positive bodily health. It has been asserted again and again that girls cannot pursue a thorough college course, and yet enter womanhood physically fitted for the burdens of life, especially those of the mother and the housekeeper. Dr. Clarke, Dr. Goodell, and many another have pointed to "Vassar Victims," as examples of what ruin such an education will work. Yet spite of it all women's colleges are multiplying, and men's colleges are opening their doors to women; and not a few instructors say that women can and do work as well as men, and when they work wisely, that it is done with as little danger to health. Arguments and facts are bandied to and fro without any as yet very definite conclusion.

It is of the greatest importance for us as a people to know definitely the facts in the case—not the isolated uncoördinated facts as to this girl or that, or even this college or that, but *all* the facts, from as large an area of country, and as large a number of colleges, and as large a number of women as possible. Women's colleges have now been established long enough, if not for a definite, at least for an approximate estimate of their effects on the health of their students. Accordingly, we beg leave to suggest to this admirable Association, that

no subject could better receive their earnest attention and research than the establishment of the facts in the vexed question. To do this would require considerable time and labor, but the result would be worth it all. The later histories of each graduate should be obtained, as to race, age, health, marriage, the number and health of their children, their occupations, if in ill-health, its nature and supposed cause, if deceased, the cause of death, with numerous other points which will readily suggest themselves. All this should be examined, and reported upon with an honesty above suspicion. If the future mothers of our country are being ruined physically by our methods of education, who should wish with such downright earnestness of purpose, to remedy the impending evil as our educated women themselves? If a false cry is being raised which will hamper the just and wholesome intellectual development of women, who are more interested in showing it than the graduates of our women's colleges? Truth, broad truth is what we should seek. Individual experience is apt to be very erroneous; only large numbers eliminate errors. But until facts based on such numbers are forthcoming, each of us must use his own or his neighbor's personal experience as the best, and indeed the only guide.

We present these views to the Association, as suggested by their excellent circular, and trust they will act promptly, and with an unbiased desire for truth in obtaining and publishing the results of an extended examination after the method we have indicated.

VULPIAN'S EXPERIENCE WITH ANTISEPTICS IN TYPHOID.

IN his service at the Hôtel-Dieu, VULPIAN has made some comparative observations on the utility of the various antiseptics employed in typhoid fever. Iodoform has not given any good results. This is the more remarkable, since this agent now occupies an important place as a remedy in septic processes. Salicylate of bismuth is an excellent antiseptic, but it is not readily soluble, and hence the large dose necessary to obtain any result—from two to three drachms daily—presents many inconveniences. It is found, also, to increase the tendency to nasal and intestinal hemorrhage. Boracic acid, carried up to the dose of three drachms daily, by regular increment of the daily dose, has not done any good. The best results have been achieved with salicylic acid. Vulpian has administered this in doses of three or four grains every half-hour until the daily quantity has reached the large proportion of three drachms. In some patients, especially in young men, he has produced some cerebral disturbance—a light delirium—in others albuminuria has appeared; but this is by no means an uncommon symptom in typhoid when left to its own course, and in some cases the albuminuria disappears when as much as 200 grains of salicylic acid are taken daily. The real cerebral effect which may, then, be referred to salicylic acid, is a slight delirium. Under the salicylic-acid treatment the temperature falls in forty-eight hours, three to four degrees; and this reduction of the body-heat is more persistent than that effected by carbolic acid. At the same time there ensues a notable amelioration of the general condition of the patient. But Vulpian does not pretend that the mortality from the disease, nor its duration, is notably diminished by the modification in its symptoms thus effected by salicylic acid.

In the course of the discussion on Vulpian's observations, it appears that the central idea of the antiseptic treatment of typhoid is to act on the typhoid germs introduced into the intestinal canal from without. Vulpian gives the preference to salicylic acid because it possesses so little toxic activity *per se*. He objects to the use of the carbolate of sodium for this purpose, because, owing to its solubility, it cannot be accumulated in the blood in sufficient quantity to act on the disease germs. The treatment by purgation during the period of invasion—the prodromal stage—was also considered. One of the modes of the "specific treatment" of typhoid, as pursued by our German colleagues, is the mercurial plan, which consists in the administration of purgative doses (ten grains) of calomel during the first week. Several doses of this kind must act in three ways: sufficient bichloride is produced to act on the typhoid germs as a poison; the germs are removed by the purgative action; the temperature is lowered by the combined result of these actions. The range of temperature has a certain relation to the number and activity of the germs present in the blood. Hence their destruction at an early period becomes very desirable.

THE ACTION OF HELENINE ON THE BACILLUS OF TUBERCULOSIS.

Still another item has been added to our long list of scientific debts to our trans-Atlantic *confrères*. While yet laden with our burden of gratitude to Koch for his alleged discovery, we learn that we are not less indebted to France. Germany, we are told, has discovered the nature of tuberculosis; France must discover its antidote. M. DE KORAB has saved the credit of France in this scientific rivalry.

At a recent meeting of the Académie des Sciences, M. Bouley read a note by M. de Korab, in which he detailed the results of some experiments made with helenine as an antidote to the effects of the bacillus tuberculosis. He was led to undertake

this study from the good results observed in cases of diseases of the respiratory apparatus in which helenine had been administered.

In the first place he found that this drug hindered the development of the bacilli in culture fluids, and he also claims that the administration of helenine will prevent the symptoms of tuberculosis in animals inoculated with the bacillus. Thus he reports four series of experiments: in the first series he inoculated seven guinea-pigs with the bacillus obtained from serous culture-fluids; a fatal result occurred in all; three guinea-pigs were then injected with the bacilli of the culture-fluid to which helenine had been added; no tubercular lesions appeared.

In his second series, tubercular sputa treated in the same way were substituted for the cultivated bacilli, and the same result was produced; the sputum treated with helenine was innocuous.

His third series of experiments was made on ten rabbits, into whose peritoneal cavity serum containing bacilli was injected; five of these animals received three centigrammes regularly of helenine, and showed no evidence of tuberculosis, while the five others died on the eighth to tenth day.

In this fourth series the bacilli were injected into the anterior chamber of the eye in four rabbits, and the characteristic results appeared on the tenth day; two of the rabbits received regularly two centigrammes of helenine every day; they recovered, while the two other rabbits died.

We fear that the desire to sustain the national reputation for scientific research has led M. de Korab to take a rather too enthusiastic view of the specific properties of helenine; his results are wonderfully successful, but to carry conviction as to their reliability they require the confirmatory observations of other investigators.

HYPODERMATIC INJECTIONS OF STRYCHNIA IN NERVOUS AFFECTIONS.

Dr. Cerenville strongly advises the subcutaneous injection of strychnia in chronic myelitis, when the morbid process is arrested, and in those examples of posterior spinal sclerosis characterized by trivial aggravations of the symptoms, in incontinence of urine, and in cerebral affections.

There is no danger in this mode of administering strychnia, provided the treatment is begun by small doses gradually increased. In some subjects an abnormal excitability to the action of strychnia is observed. Such cases indicate an irritative action already existing at the site of the lesion. This excitability may have diagnostic importance. If the reaction following the introduction of strychnia is excessive, or if it is excited by minute doses, it may be rightly assumed that the local morbid process is in an active state. The converse is equally true. The cumulative action of strychnia may be confounded with an abnormal excitability of the part the seat of disease. This, however, is possible only when the medicament is administered in the form of pills. When thus administered a slow accumulation may take place; but when given hypodermatically at proper intervals, the absorption and elimination of this agent occur promptly, and accumulation does not take place.

In the treatment of posterior spinal sclerosis, whilst the action of the medicament administered by the stomach was practically *nil*, when given subcutaneously the incoördination of muscular movement was lessened, and the incontinence of urine ceased altogether. When the amount of strychnia injected subcutaneously is excessive, the intolerance of patients is manifested in various ways: in one it is an excessive irritability, or at another time a temporary trismus; in another, an obstinate headache; in some, jerkings of the muscles of the neck and extremities; in others there is vesical tenesmus. The quantity of strychnia necessary to excite these phenomena will vary greatly in different subjects, according to their susceptibility, and to the state of the centric lesions.

THE LAST DITCH.

The *Medical Record*, consistently with its general advocacy of the New York Code, "can hardly believe" that the County societies seriously intended to instruct their delegates how to vote at the next meeting of the State Medical Association, and thinks that unless each delegate exercises his right to "free thought, free speech, free opinion, and free voting," a just and impartial decision can never be reached on any question. It is led into this painful state of doubt by a letter from a well-known physician who, for his part, does believe that the County societies have instructed their delegates for 1883 to vote for reversing the action of the meeting of 1882, but thinks it "a grave mistake." They agree, however, in the opinion that the particular subject to which these remarks refer—which, as has been said, was the New York Code—requires further and fair discussion and a presentation of the "different pros and cons."

We are neither so cautiously incredulous as the *Record*, nor so dissatisfied with the situation as its correspondent. Indeed we are reckless enough to feel absolutely certain that about eight-ninths of the County societies in the State of New York which have taken action on it, did deliberately, unequivocally, and almost unanimously direct their delegates to vote against the so-called "new code," at the coming February meeting of the State Medical Society, and they did it, knowing full well the exact signification and effect of their action. We

believe that when they described it as "opposed to public interests, and dishonoring a noble profession," or as "impolitic, unwise, and hurtful," or in other even more derogatory terms, they knew and meant exactly what they said, and we think, moreover, that nothing they have ever done has more clearly shown their sound common sense and high standard of professional honor.

As to the *right* of the County societies to instruct delegates in reference to their votes and influence upon any topic of general interest, it is puerile to question it. The County societies form the basis of representation in the larger association; the delegates receive from them the necessary credentials, and have always been expected to express upon all such matters the previously known sentiment of the society, and not their individual opinions. They have, at the time of receiving their appointment and instructions, ample opportunity to protest or to resign; and if they felt their condition to be one of "moral and intellectual servitude," or that their office was "humiliating," and their position "unenviable and undignified,"—to employ the touching language of the *Record's* correspondent—they would probably express themselves to that effect. It may be added also that there is every chance for fair discussion, and even for the advancement of "pros and cons," in the County societies themselves, and that when they "utterly repudiate," "protest against," "strenuously object to," and otherwise strongly disown any special theory or rule of conduct, the presumption is that they do so only after full and careful consideration, which could hardly be improved upon even by the presence of "five of the best known medical men of the State of New York," who, if we may again quote the *Record's* correspondent, deliberated upon the subject for a year, and finally recommended the new Code. The mountain and the mouse does not begin to afford a parallel. Perhaps a closer one could be found in the history of certain other wise men of Gotham whose enterprise also came to grief. This statistical attempt to work upon the feelings of the delegates, and to imbue them with the idea, first, that the societies have no right to instruct them, and next, that if they have, it is unmanly to be instructed, may be characterized in one word by an expressive Americanism—Buncombe!

MEDICAL BRAVERY.

THE engagement at Kassassin, in the recent Anglo-Egyptian war, afforded two illustrations of the bravery of the army medical officers, which are worthy of being recorded, especially, as in the English army the surgeons are classed as "non-combatants," and are persistently denied their proper rank and recognition.

The only officer who was killed on this occasion was Surgeon-Major George Shaw, who, for the purpose of rendering assistance to a wounded man, voluntarily exposed himself to a scathing fire from the enemy. He was struck in the temple by a rifle-bullet, which penetrated and lodged in the brain, and lived only about three hours in an unconscious state. During the same engagement some movement of the troops left the first company of the Army Hospital Corps in an isolated and dangerous position. The medical officer in charge refused to permit the work of dressing the wounded, many of whom needed instant attention, to be intermitted for a moment, and declined to make any change of position until that duty had been attended to. His men, some forty in number, accordingly filled their haversacks with sand, so as to form temporary breast-works, took the rifles of the wounded who were unable to use them, and defended their charge until the arrival of the cavalry terminated the enemy's attack.

These facts are obtained not from the columns of the London daily press, nor from the illustrated weeklies, which are filled with descriptions and representations of the heroism of the Household Cavalry and the valor of the troops in general, but from modest notices in the correspondence of one or two medical journals. So far as we have seen, the lay press has had no word of commendation for the men who, relegated officially to an inferior social and military position, without the stimulus of the tremendous excitement of the officers who make or mar the game of war, and with little or no prospect of sharing the honors in the event of success, thus coolly and unflinchingly risk and lose their lives in the performance of their duty, not only upon the field of battle, but in confronting and combating disease in its manifold shapes. We have no wish to detract from those soldiers who have so well acquitted themselves during the recent campaign, but truly brave men can afford to give honor wherever and to whomsoever it is due. We should been glad to see some mention of the medical department in the despatches or some allusion to it in the encomiums upon the army with which the English press is now filled.

EXPLOSIVE COMBINATIONS.

ATTENTION has been repeatedly called to those extemporaneous combinations which form explosive mixtures. It may be useful to our readers to point out some of those most frequently prescribed. Amongst these are chlorate of potassa, permanganate of potassa, chromic acid, and glycerine.

A pomade composed of chloride of lime, sulphur, and other substances, will detonate when rubbed up in a mortar, and the whole mass may deflagrate.

When the hypophosphite of lime or soda is triturated alone, if pure, it may explode. Pills composed of the oxide of silver, are apt to decompose in a tremendous explosion. When the tincture of iodine is mixed with ammonia, the iodide of nitrogen—a violently explosive substance—is formed. If this is triturated in the presence of water, an explosion is almost certain to occur. A mixture of chlorate of potassa and tannin is apt to explode. The dentifrice containing chlorate of potash and catechu, has been known to explode in the mouth, when rubbed with a dry brush.

REVIEWS.

THE PHYSICIAN HIMSELF, AND WHAT HE SHOULD ADD TO THE STRICTLY SCIENTIFIC. By DR. D. W. CATHELL. Pp. 194.

Also 2d edition, pp. 208. Baltimore: Cushings & Bailey, 1882.

"THE proper study of mankind is man!" It was an ingenious idea of Dr. Cathell to put into writing the traditional and personal experiences of medical men, in respect of their business and technical relations to the world about them. There is nothing which men so much enjoy as the contemplation of themselves and their affairs—nothing which they read with so much zest as the account of their own doings and sayings, and the formal expression of their thoughts and experiences. Dr. Cathell has rendered them this great service; he presents to physicians who have succeeded the interesting details of their daily work, and he points out the road to success for the benefit of those about to start on a professional career.

There is much in "The Physician Himself" to commend—some things which should be condemned. Some of the methods set forth in the book have been unpleasantly exemplified in the means used to promote its sale. The circular containing extracts from private commendatory letters and reviews, sent forth under the signature of Dr. Cathell, to urge the sale of the work, is not a delicate proceeding, to use no harsher term. We must object to precepts, similar in their design to this example, which we find in the book. Thus, on page 11, it is stated—"It is proper and advisable to display your library, microscope, and other aids to precision; also your diploma, certificates of society membership, pictures of eminent professional friends, etc." Again on page 18, "If, at your office and elsewhere, you make use of instruments of precision—the stethoscope, ophthalmoscope, laryngoscope, the clinical thermometer, magnifying glass, microscope, urinary analysis, etc., they will not only assist you in diagnosis, etc., but will also aid you greatly in curing people by heightening their confidence in you, and enlisting their coöperation!" In such injunctions, the spirit of humbug is inculcated. The real use of the instruments of precision is the shadow, whilst the substance is the impression which such an appearance of scientific skill will make on the people. It is as much as to say to young practitioners, surround yourselves with much brass paraphernalia, to impress your clients, and, if you can, use them in diagnosis also, but above all, impress them. This is the spirit of the advice. Externals, a right appearance before the public, and the exhibition of mere paraphernalia, are the proper objects of a physician's attention. It is true here and there, right doing as well as correct conduct are urged on the physician, but the tendency of the instruction is to encourage pretension, rather than the possession of genuine merit. Whilst the book thus tends to encourage the cultivation of mere externals as a means of introduction to successful practice, it is by no means wanting in the expression of the noblest sentiments. The moral reflections, however, seem to be of the Joseph Surface character; intended rather to make an impression on the bystanders, than to affect the inner life and conduct.

Notwithstanding the unpleasant effect which the work makes on the whole for artificiality, for mechanical morality, and for mannerisms that are contrived to excite interest in their possessor merely, it is a distinctively useful and, in some respects, original work. No young medical man can fail to be benefited by its perusal, and no established practitioner can read it without obtaining useful hints for his guidance. Indeed, we believe, so perfect is the model of a young physician there drawn, that no man can form himself on it and fail to succeed. No experienced physician can rise from the perusal of the work, without a feeling of profound respect for the acuteness, the sagacity, and the knowledge of human nature possessed by its author. Although such a work encourages attention to mere externals, it must, on the whole, improve the professional status of those who conform to its instructions.

In the second edition which we have just received, some changes have been made in the expressions used, typographical errors have been eliminated, and the matter has been in some places rearranged; but on the whole, the work stands as it originally appeared. Our final judgment, formed after the perusal of both editions, is, that "The Physician Himself" is a work of very great merit, barring the superficial and mechanical morality which it inculcates, that its author must be a shrewd and successful physician, who joins to great regard for external forms, a genuine love of his professional duties, and who is, at the same time, a shrewd observer of the weakness of mankind and skilful in his adaptation of the means necessary to utilize them for his own advancement. We can, however, conscientiously commend the work to our readers, with the conviction that no man can conform to its dicta, without having a measure of success. At the same time, we must insist that merit so conspicuous does not need the aid of *clap-trap* to obtain a proper recognition. No physician possessed of such capacity as shown by Dr. Cathell, could fail to rise in his profession; but our admiration of the ability unconsciously displayed in the book, is saddened by the reflection that such superior capacity had not found an adequate space for its proper development in the higher walks of professional activity.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, October 5, 1882.

FORDYCE BARKER, M.D., LL.D., PRESIDENT, IN THE CHAIR.

AFTER the reading of the minutes of the previous meeting and various reports, the scientific work of the evening was taken up. This consisted in a paper by DR. EDWARD G. JANEWAY, entitled

CASES ILLUSTRATING THE DIAGNOSIS AND LOCALIZATION OF BRAIN DISEASES, AND THEIR DIFFICULTIES.

By way of introduction, Dr. Janeway said he had first intended to confine himself to the subject of locali-

zation, but upon reference to what had already been done in this direction, he found that the cases bearing upon this point had been so thoroughly examined by Pitres, Grasset, Charcot, Ferrier, Deboyer, Nothnagel, and Exner, that he believed the time could be more advantageously occupied in another way.

He preferred, first, to speak of the difficulties of diagnosis between certain brain troubles and general diseases, and afterwards to present cases illustrating the subject of localization.

Dr. Janeway first took up the consideration of the difficulties presented by typhus fever in distinguishing it from cerebral diseases. He made special mention of cases coming under his observation which had been mistaken for meningitis and cerebritis.

The disease which was most likely to mislead between both of these, because of its implicating the brain, was what has only been recently recognized as coming in the category of special diseases, viz., acute endocarditis. He alluded to the fact that embolism in the brain, petechiæ on the surface, and fever would naturally mislead one in differentiating between typhus and brain diseases. The diagnosis would, in a given case, mainly depend on finding petechiæ on the surface, associated with paralysis or aphasia, indicative of embolism in the cerebral arteries. Naturally, in such a case, one would suspect ulcerative endocarditis. An illustrative case was adduced.

Typhoid fever was next taken up, which was less liable than typhus to be mistaken for brain disease, but still, once in a while, errors did occur. Embarrassment in diagnosis was mainly due to the symptoms of stiffness at the back of the neck and marked cerebral manifestations.

The reader of the paper then took up malarial fevers. He spoke of the fact that nervous diseases, with periodicity, were more apt to be mistaken for malarial trouble than the latter for nervous diseases, and instanced particularly examples of tumors with periodic headache, abscess, and pachymeningitis, secondary to bone disease, as ostitis media, injury to bones of head, etc. Congestive malarial troubles, with coma and convulsions, might very easily be mistaken for brain disease. He stated that in two cases he had found the lesions of cerebro-spinal meningitis together with pigmentation of the spleen and liver, and one case in which there was pigmentation in the vessels of the brain, showing that combinations might occur. The hypodermic syringe had been used in two cases for the purpose of determining whether satisfactory diagnostic results could be obtained by exploring the spleen. The spleens were swollen, and though a drop of blood was obtained, no evidences of pigmentation were found by its examination. Mention was made of cases in which the muscular pain was out of all proportion to the cutaneous hyperæsthesia, and in which an exploration of the pectoral muscles was made for trichina, in order to avoid error in diagnosis, or to determine a coincidence.

The difficulties in differential diagnosis presented by pleurisy and pneumonia were spoken of, particularly when occurring in children. Pneumonia was the more apt to be mistaken for brain trouble, especially when it began in the centre of the lung, or high up in the axilla, or posteriorly — places rarely examined in children. The symptoms of stiffness in the back of the neck and delirium present at the onset of the disease, were the principal causes of failure in diagnosis.

Bright's disease was liable to mislead in a good many ways, among which were the following: First, it had been laid down as a rule of diagnosis, that albumen and casts in the urine were good distinctive signs between coma of Bright's disease and hemorrhage in the brain. This statement, Dr. Janeway thought, should be taken with a great deal of reserve. In such cases he depended more upon the nature of Bright's disease; whether it was the small contracted type of kidney, with arterial changes and hypertrophy of the left ventricle. In its detection a paralysis, monoplegia, or hemiplegia was of a great deal more value than albumen and casts, because albumen was found in the urine in cases of hemorrhage. This point was illustrated by citing the case of a sixteen-year-old boy, who had as symptoms, headache, muscular soreness, hyperæsthesia of the skin, choked disk, fever, marked stiffness of the back of the neck, delirium, unconsciousness — symptoms which seemed to indicate involvement of the brain. The post-mortem showed small kidneys, hypertrophy of the left ventricle of the heart, and hemorrhage into the middle ventricles of the brain, due to rupture of a small miliary aneurism in the tænia semicircularis.

A case was next mentioned showing the liability to a severe mistake. The patient was a young man who had been examined by an oculist and had been told that he was suffering from retinitis due to Bright's disease. Over thirty examinations of urine failed to show the first symptoms of Bright's disease. The patient had brain symptoms and suffered from great muscular weakness. These lasted for some time, then improvement took place, and he finally recovered with blindness.

The author of the paper now passed to cases illustrative of localization.

The first example cited was that of a patient having aphasia and agraphia, but with no paralysis anywhere. The only history attainable from the man was by gestures, which were perfectly intelligible. He had received an injury to the left side of the head at a point just about opposite the position of the third frontal convolution, as a result of a premature blast.

A second example was that of a man who had been hit with a billiard cue in the left temporal region. The symptoms were aphasia, agraphia, and paralysis of the right side of the face and the right side of the tongue, but no arm or leg paralysis. The patient recovered.

Next came a case of tumor of the brain, situated for the most part in the upper portion of the two central convolutions and paracentral lobule, the symptoms being hemiplegia on the opposite side, involving the arm and leg.

A fourth example was that of a woman having a tumor pressing on the temporo-sphenoidal lobe. There was no paralysis. She died as the result of falling out of a window in a drunken brawl.

Other cases were omitted on account of multiple lesion and previous publication. One patient had pachymeningitis with lesion of the sixth and ninth nerves, and paralysis of the tongue and external rectus. The autopsy showed compression of the above nerves at their exit through the dura mater by the dura mater. This case was alluded to because the statement was found in some books that such a condition of things never occurred.

A case of paralysis of the lower part of the face, that part usually considered indicative of cerebral paralysis, was then alluded to, in which the autopsy showed a gliomatous tumor of the pons. Other paralyses were present in this case, which made the diagnosis possible during life.

DR. SEGUIN opened the discussion by saying that the paper had been a very instructive one to him, especially the first part of it, which set forth the difficulties in the differential diagnosis of brain diseases from general diseases. He thought specialists were not generally well versed in this part of the subject. Certainly his own experience had not been much. He thought that in many cases where there was a coexistence of cerebral and renal degenerative symptoms, it was im-

possible to avoid a double diagnosis of miliary aneurism and kidney disease.

PROF. JOHN C. DALTON being called upon by the Chair, remarked that he thought such papers as that of Dr. Janeway, that tell us something of the difficulties of this matter, are a little more what we want than the recitation of cases which point out the coincidence between the loss or disturbance of particular functions, and an injury or destruction of certain parts of the brain. Cases of the latter kind are satisfactory and entertaining in a great many ways, but when he recalled the great anticipations which were felt when the doctrine of cerebral localization was first inaugurated, and the remarkable corroborations that followed by experimental physiologists who found that by irritation of particular parts of the brain, particular paralyses followed, it seemed as if a new era began, and that all we had to do was to map out the brain, as the old phrenologist had mapped it out for another purpose. Though he thought these anticipations were just, new difficulties were beginning to present themselves. He presumed that every pathologist present knew of instances of lesions of particular parts which were not accompanied with the symptoms attributed to such lesions, and also where the symptoms were present, but were not accompanied by destruction of those particular regions of the brain.

Now, he did not imagine there was any contradiction between physiology and pathology; there are only difficulties. And at the present stage these difficult cases and apparently contradictory cases are the ones we want to discuss. We are all familiar with Hitzig's cases, in which, by the application of an electrode to particular parts, he always produced definite muscular movements upon the opposite side of the body, and afterwards, when he cut out these parts of the brain, paralysis followed. These observations were supported by pathological evidence; but after a while we found that it was not all clear.

The first difficulty was that extraordinary one disclosed by experimentation, in which it was found, after cutting out the motor tract and producing muscular paralysis upon the opposite side of the body, that it was not a permanent paralysis. The animal was hemiplegic the next morning after the operation, but in two weeks he had recovered the lost power. Now, how can we explain this? A good many different explanations have been offered. First of all, we may suppose that other parts of the brain take up the functions previously performed by that part of the cortex which has been removed. This explanation, Prof. Dalton did not think was satisfactory. It was too clumsy. According to this theory, after cutting away portions of the brain controlling the movements of certain parts, other cells in the neighborhood, that have never before been called upon to act in the capacity of those removed, gradually take up their function, and after a time perform it regularly.

Regarding the recovery of sensibility, it was stated that, after the removal of the angular convolution, the animal was at first blind, but afterward recovered sight. One of the most ingenious explanations of this fact was that of Monk, who says that, after cutting out the angular convolution the animal is not blind; that he sees as well as ever, but does not know what he sees. The animal is soul blind, as Monk terms it. According to this author, if an adult man who had always been blind could suddenly be enabled to see his best friend, he would not know him. Monk supposes that the visual image is upon the eye, but to know what that visual image means is another thing. Experience gradually teaches him what this image is. According to Monk, this is what happens when the angular convolution is cut away. The animal sees as well as before the operation, but does not know what he sees. Monk thinks that in the neighborhood there are other cells capable of doing the work of those which have been removed, but have never been called upon to do so. These cells have got to go through the same process as the others did from the beginning, just as if the animal was born again. This was a very ingenious theory, but he thought all would agree that it was rather deep water. Take a dog and do such an operation upon the right side, when you hold a piece of meat before the left eye the dog does not bite at it. He appears not to see it. Prof. Dalton thought that in an animal naturally as curious as a dog, he would make some attempt to examine the piece of meat if he saw it, even if he did not know what it was.

Prof. Dalton discussed the paper still further. He was followed by Drs. W. R. Birdsall and Hermann Knapp, and the discussion was closed by Dr. Janeway.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Stated Meeting, October 4, 1882.

W. S. W. RUSCHENBERGER, M.D., PRESIDENT, IN THE CHAIR.

DR. H. AUGUSTUS WILSON reported a case of

TRANSPOSITION OF THE VISCERA,

the comparatively rare occurrence of which, he considered a sufficient excuse for occupying the time of the College. He regretted that he was not able to offer a more complete record of the case; but a careful dissection was impossible without taking an unwarranted risk of septic poisoning, as the abdominal cavity was filled with fetid pus.

Frank M., aged 21, died at the Presbyterian Hospital of purulent peritonitis. I shall ignore in this paper the pathological conditions found at the post-mortem examination, inasmuch as they have no bearing upon the subject under consideration.

The patient had been aware since boyhood that his heart was misplaced, and upon one occasion a physician told him that that was the reason he was left-handed. He had never been very strong; but it does not appear that he ever had any serious affection the cause of which could be assigned to his misplaced viscera.

In 1878, when he first came to the hospital, Dr. James Markoe, under whose care he was, noticed that not only was his heart perceptible in the fifth interspace of the right side, but also by percussion ascertained that this organ occupied the same relative position upon the right side that it should upon the left. He found, also, that the liver and spleen were transposed, but no further changes seem to have been noticed.

At the time Dr. Wilson made the post-mortem examination, he found externally nothing to indicate the great changes in the positions of the internal organs, except that the right testicle was suspended at a lower level than the left. When he had opened the thorax and abdomen, and laid bare the organs contained therein, the appearance to him was as though he was looking at the body reflected in a mirror. It was like the photographer's negative.

The *heart* first attracted his attention, and was found to be normal in every respect, but occupying, as already noted, a position upon the right side. It looked as though it had been pushed over to its present position without changing materially its relations with other organs. The right side was the pulmonary side and the left the systemic side, and in this respect the organ performed its functions in a normal manner. The aorta, starting from the left ventricle, followed a somewhat irregular course, crossing over the right bronchus

and going from there to the right side of the vertebral column, along which it descended upon the right side. The branches given off from the arch of the aorta were the two coronary arteries unchanged, the innominate going up the left side of the neck and giving off the left common carotid and left subclavian, while coming from the right portion of the arch were the right common carotid and right subclavian.

The *lungs* were reversed. The right lung was found to be smaller to allow space for the heart. It had two lobes. The left lung corresponded in appearace to what is commonly the right lung, was shorter than its fellow, being pressed up by the liver, was broader, and had three lobes.

In the *abdominal cavity* the liver occupied the left hypochondriac and partly the epigastric regions, the large lobe to the left and the smaller ones to the right, the gall-bladder and everything else similarly changed.

The *stomach and intestines* were transposed. The stomach was partly in the right hypochondrium and partly in the epigastric region. The pylorus extended forward and downward toward the middle of the abdomen. The spleen was on the right side, and attached to the greater curvature of the stomach.

The *cæcum* was situated in the left iliac fossa, and the colon ascended on the left side and crossed from left to right side of the abdomen. From there it descended and terminated in the sigmoid flexure upon the right side.

As already stated, the man was naturally left-handed. Hyrtl was the first to advance the theory that we are normally right-handed because of the more direct flow of blood to the brain upon the left side. And this theory would be substantiated if all cases where the heart and great vessels were transposed were left-handed; but such is not the case. A few years ago a theory was advanced that right-handedness depended upon natural selection. But the easiest explanation is that from earliest infancy we are instructed to use the right hand always in preference to the left. When a person with transposition of the viscera is left-handed we may call it a coincidence. In any other view, it would be extremely difficult to account for the far larger number of persons whose organs are arranged normally and yet are left-handed. In the cases that are noted in the journals Dr. Wilson has not been able to find statistics enough to draw any inferences, for, when this condition is noted, right-handedness appears to be as frequently met with as left-handedness in cases where the viscera are transposed.

Peacock, in his monograph on Malformations of the Heart (T. Peacock, *Malformations of the Heart*, 2d edit., 1866), says that the most common of all the internal displacements is that in which the heart is placed upon the right side in a position corresponding to that which it should occupy upon the left, and that this displacement is almost always associated with more or less complete transposition of other viscera. Occasionally the heart is transposed, while the other organs are unchanged (Sur l'Ectopie de l'appareil de la circulation et particulièrement sur celle du cœur.—*Rep. Gen. d'Anat. et de Phys. Pathol.*, t. ii., 1826, p. 1).

Among the earliest recorded cases are those of Servius and Schenkius in Rome in 1643 (Thomas Bartholinus, *Hist. Anat. Cent.*, ii. 29. Amst., 1654), and one by Riolan in 1652 (Allen Thompson, *Glasgow Med. Journ.*, vol. i., 1853, p. 220).

The first case recorded in which the malformation was noticed during life appears to be that described by Morand (Méry, *Memoirs of Academy of Paris for* 1866) in 1666. This case seems to have attracted considerable attention at the time, and was said to have suggested to Molière the transposition of the heart and liver which he puts into the mouth of Sganarelle in his play of *Mèdecin Malgré lui*, published about the time this case was reported.

In cases of more or less complete transposition, the arteries, if they do not retain their natural positions, may be displaced in almost all conceivable ways.

Dr. Gamage (*N. Eng. Journ. Med. and Surg.*, iv., 1815, p. 244) reported a case in which the aorta arose from the right ventricle and the pulmonary arteries from the left ventricle. Mr. Abernethy (*Philosophic Trans.*, 1793, p. 59) saw a child, ten months old, where the portal veins terminated in the vena cava, the liver being supplied from an unusually large hepatic artery. Mr. Douglas Fox (*Lond. Med. and Phys. Journ.*, vol. ii., 1824, p. 474) reported the result of a post-mortem examination in a case where the heart was transposed, and the aorta, after crossing the right bronchus, passed behind the lower end of the trachea, over the vertebral column, and pursued its usual course from there down the left of the spine.

For a very complete account of a case similar to the one now reported, and for an exhaustive study of the histology of such malformations, the reader is referred to Dr. Allen Thompson's paper in the *Glasgow Medical Journal*.

As regards the practical application of this case, it would be well to bear such abnormality in mind as a possible condition in cases brought to a physician's notice in an unconscious condition. It will readily be seen that considerable difficulty might arise is forming a diagnosis. In surgical operations upon the thorax or abdomen it would prove a serious complication, as, for instance, in colotomy, paracentesis abdominis or pericardii.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Thursday, October 5, 1882.

VICE-PRESIDENT, T. M. DRYSDALE, M.D., IN THE CHAIR.

DR. W. GOODELL exhibited the specimens and gave the histories of the following cases:

NEPHRECTOMY FOR RENAL CYST.

Mrs. C. M. G., aged 52, and married for twenty-eight years, has had three children, the youngest of whom is twenty-five years old. For many years she has had pain in the left renal region, and sharp attacks of gravel. This pain was so increased by jolting that she was unable to drive even in a carriage with double springs; but she has never experienced the excruciating pain of a stone passing down the ureter; of this she is positive. Four years ago she began to enlarge, but she did not suspect a tumor. As her health grew worse, she came on from the west and in last July consulted Dr. J. F. Bird about it. He recognized a cyst and called Dr. Goodell in to see her. Despite her age, her catamenia were not only regular, but too free. Dr. G. expected to find a fibroid, but the womb measured only three inches, and it was also very movable and wholly independent of a large cyst, which filled up the abdomen like an eight months' fœtus. The lower edge of the cyst could be felt per vaginam lying in front of the womb. Percussion elicited all the phenomena peculiar to ovarian cysts. Coronal resonance was marked. There was dulness in front showing the complete absence of intestines from that region—their presence being alleged to be one of the most trustworthy signs of a renal cyst. As the lady stated positively that there were changes in the size of the tumor, Dr. G. was disposed to regard it more as a cyst of the broad ligament than one of the ovary.

The operation was performed on September 16th. As soon as the cyst was reached, it was ascertained

that it was not ovarian or parovarian; but it was fully fifteen minutes before its true character was discovered. The cyst was covered with a very vascular but loose layer of peritoneum, to which in the lateral regions the intestines were attached, and in which they seemed to be imbedded. This was cut open and stripped off from the whole cyst, which now revealed on its lower border an expanded and healthy portion of the left kidney. To confirm the diagnosis, a small calculus was found within the cyst, and a much distended ureter discovered. The pedicle formed by this process of enucleation consisted, below the ligature with which it was secured, of the renal bloodvessels enveloped in connective tissue. But to get a button of tissue sufficient to prevent all slipping of the ligature, the operator was obliged to leave on its distal side a small portion of the cyst, but none of healthy kidney.

It was evidently a case of hydronephrosis, but the uterine sound was passed into the ureter and no obstacle was met with; it probably did not reach the bladder. This ureter was brought out at the lower angle of the wound, and secured there by one of the sutures. Nineteen days have now elapsed since the operation, and the lady has done uniformly well, and sat up to-day for the first time.

HYDATID OF MORGAGNI.

The lady from whom this specimen was taken was operated on by DR. GOODELL on September 4th, and promptly recovered. The cyst was of the left ovary, but the right one being also diseased, was removed. Attached to one of the fimbriæ of the oviduct is a very beautiful specimen of a hydatid of Morgagni. This little body, so often found attached to the ovary, was of interest because those small cysts of the abdomen which, after attaining a small size, would burst and usually refill, were, in Dr. Goodell's opinion, cysts of this hydatid.

CYST OF THE PAROVARIUM.

This specimen was taken from a young woman, aged 22. The tumor was first noticed eight years ago. DR. GOODELL aspirated her before the clinic at the University of Pennsylvania, in October, 1880, and November, 1881. On each occasion a perfectly limpid fluid was removed, and the diagnosis was consequently made of cyst of the broad ligament. As the cyst again refilled, she demanded its removal, and she was accordingly operated on before a ward-class on September 19th. The cyst sprang from the left side, and had the usual delicate and vascular wall. Spread out on its lower border, is the corresponding ovary, which could be very readily overlooked by a careless observer. The right ovary, being much enlarged and filled with small cysts, was also extirpated. When first removed, it contained fine corpus luteum, but the alcohol had dissolved this out, leaving merely the deep pit which held it. The operation was performed just two weeks after her last monthly period. The usual metrostaxis occurred on the fifth day after the operation. The patient is convalescing well.

PAPILLOMATOUS UTERINE GROWTHS.

DR. W. H. PARISH exhibited two vials, containing apparently similar growths removed from the endometri of two patients, one of which from concurrent symptoms, he considered benign, but the other he thought malignant. In the first case, menstruation had ceased for a year, after which it had returned and became constant and profuse. She had suffered from prolapse following labor, twelve or fifteen years ago. Dr. Parish dilated the uterus with two sets of spongetents, after which he introduced his finger and found a number of elevations as large as a pea; some of these he removed by means of curettes, and others by seizing them by forceps and twisting them off. Some metritis followed the operation, but no blood has been lost in the last four weeks.

The second specimen was removed from a carcinomatous uterus, by means of the curette and the ecraseur.

DR. GOODELL remarked that he did not allow the revelations of the microscope to govern him in his treatment of bleeding uteri. He had under his care, recently, three such cases, all of which were reported by noted microscopists to be carcinomatous, but one of these cases was entirely cured by local measures.

One case of lacerated cervix with ectropium and free hemorhage, which was pronounced undoubtedly cancerous by a microscopist of high repute, was relieved by scraping and cured by operation. Another case pronounced cylindrical epithelioma, by the same gentleman, recovered after operation.

A patient of Dr. C., while in this city, was referred to me for examination as to the cause of persistent menorrhagia. Ether was given, and a careful and thorough examination made, and the round and sharp curettes were used; but Dr. Goodell could find no cause except a few minute granulations. This class of cases is usually found among stout or plethoric women, and the hemorrhage will recur after any treatment, although temporary benefit can be obtained. When the curette is passed over the walls of the uterus, it exercises a tonic effect, and a contraction results checking the hemorrhage.

DR. A. H. SMITH has had under treatment a number of cases of marked anteflexion, generally in young girls, in whom dysmenorrhœa is followed by very profuse menorrhagia, which proves very exhausting, and will not yield to internal remedies. Examination shows no recognizable cause, but a stem pessary will secure entire relief in a few months. He has seen six such cases within the last three years. He has had under treatment cases resembling epithelioma of the uterus, in which the introduction of a large sponge tent has resulted in complete cure, and secured the cessation of profuse and hitherto uncontrollable hemorrhage.

DR. PARISH: Some cases of incurable hemorrhage are due to inflammatory adhesions of the uterus to surrounding tissues, which will disturb the circulation and modify nerve action. He considers the smooth-wire curette a valable aid in diagnosticating the condition of the endometrium, as its passage over the uterine wall will distinguish between healthy and unhealthy uterine tissue. A patient suffering from uterine hemorrhage for three weeks following a possible miscarriage at three months, was cured by one application of the smooth curette, which brought away some granular matter.

CORRESPONDENCE.

MAGGOTS IN THE NARES.

To the Editor of THE MEDICAL NEWS.

DEAR SIR: It fell to my lot to see a case of no little rarity, and of which I desire to make a brief report.

Mr. K., of Alexander, Ill., has been for some years afflicted with a catarrh which has never received any attention and which has become an ozœna. He is an industrious Irish farmer against whom the main complaint that can be made is that he "takes an occasional drop at a dance or the like, for the sake of his constitution."

After the last dance, which continued until morning, under the stupefying effects of the alcohol, he lay in the grass until near noon. A considerate blue-bottle, which wished to deposit her eggs in a safe place, chose

the fetid secretions of the man's nose, and effectually discharged the contents of her oviduct. The environment being favorable to their development, in due time sixty-five healthy *maggots* began to inspect their new and novel quarters, and seem to have passed a favorable opinion on the nares and post-pharyngeal space, for they could not be induced to leave it through kind treatment or harsh, and, in spite of irrigation, they grew and prospered, except a few, less skilful than the rest, which, falling from the turbinated heights, lost foothold, and, once outside the nostril, found it impossible to return, and met with a summary destruction. A large number survived a week and eluded the attempts of the vigilance committee (of two neighboring physicians).

The case began to assume dangerous symptoms—erysipelas of the face was an unwelcome visitor. Between maggots and œdema of the nose and soft palate no air could be made to pass, and the mouth was the only respiratory avenue. This is the condition in which I found him when called in consultation on the morning of Sept. 22d, eight days after the dance—and to me no description could be an exaggeration of the appearance of the nauseating spectacle seen under the condensed illumination of the rhinoscope, the nostril being distended by a speculum.

They resisted the action of water completely, and it was found necessary to stand guard with forceps and catch each one until the last of the family were in captivity. Considerable surfaces of bone were found denuded, but so faithful had the operations of these little workers been that no particle of odor was to be distinguished. Respectfully,

A. E. PRINCE.

JACKSONVILLE, ILL., Sept. 22, 1882.

NEWS ITEMS.

THE PROGRESS OF YELLOW FEVER.—The news from *Pensacola* during the past week is exceedingly meagre, consisting only of the figures indicating the number of cases taken sick daily, and the deaths which have occurred. They are as follows, reported up to and including October 2d, 875 cases and 87 deaths:

Dates.	Cases.	Deaths.
October 3d,	55	5
" 4th,	56	3
" 5th,	54	4
" 6th,	71	4
" 7th,	64	2
" 8th,	77	4
" 9th,	48	5
Total to date,	1300	114

Brownsville, Texas.—But two despatches have been received from Brownsville by the Surgeon-General of the Marine-Hospital Service during the past week, the yellow fever having almost disappeared in that section. Only twelve cases and two deaths are reported up to and including the 7th of October, 1882, making a total, during the epidemic, of 1912 cases and 109 deaths.

The disease is now limited to a few mild cases inside the Arroyo Cordon, but is reported to continue with great severity in the Mexican towns and ranches bordering on the Rio Grande river; the infected districts are prevented from spreading the disease in Texas by an efficient cordon, extending from Brownsville to Laredo.

Pensacola, Fla.—Official reports, by mail, from Pensacola, have been received by the Surgeon-General of the Marine-Hospital Service to include the 4th of October, 1882, as follows:

Dates.	Cases.	Deaths.
September 30th,	44	3
October 1st,	45	4
" 2d,	45	5
" 3d,	55	5
" 4th,	55	5
Total,	244	22
Previously reported,	725	76
Total during epidemic,	969	98

The origin of the epidemic is involved in obscurity. Many cases were rumored before the presence of the disease was announced by the Board of Health on August 29th. That the disease on board the Galeta, which was sent to sea on the tenth of that month, was yellow fever appears to be conceded, but the history of that vessel, showing a period of forty days of health between her departure from an infected port and her fever while at Pensacola would indicate that she became infected there rather than that she introduced the poison. There are many who believe that fever prevailed in the port and among the shipping before the arrival of the Galeta. The city medical men have had their time fully occupied in attending to their patients. No doubt when all is over the local authorities will institute an investigation into the origin and spread of the disease, but in a case of this kind the delay of a few weeks or even days increases the difficulties in the path of the investigator. Some who could have given important information die, others sail from the port and their testimony is lost. We understand that Major G. T. Walthall, of Mobile, Ala., is engaged on behalf of the National Board of Health in prosecuting an inquiry into the circumstances attending the introduction of the disease. Major Walthall is an earnest worker in sanitary matters, a member of the American Public Health Association, and well fitted by education and experience to take up this line of inquiry. It is probable that some light will soon be thrown on this matter.

CHOLERA.—In Yokohoma and vicinity there occurred during the first twelve days of September, 283 new cases of cholera and 223 deaths, making a total since the epidemic began (in last April) of 3,509 cases and 2,223 deaths. All the new cases are among the native population.

Cholera has prevailed, also, for months past, in many of the East Indian Islands, and in some of the ports of British India. From Bombay, at the end of August, it was brought to the shores of the Red Sea by a vessel, the "Hesperia," which was sent to quarantine at Camaran, where the Imperial Ottoman Sanitary Administration has a large establishment, with hospitals for the sick, and quarters for those who are under observation. Strict orders have been issued to enforce the quarantine laws against all vessels from the East. It is probable that if cholera were introduced into Egypt in the present disorganized condition of that country, the disease would spread rapidly, and be a source of danger not only to Europe, but to this country. The shores of the Red Sea are far from us, except by telegraph; yet at present the manner in which the quarantine is there enforced has a great and practical interest for the whole of this country. Early in September, quarantine was established in Malta against vessels coming from the East. Perhaps we may soon have to learn by a bitter experience how we have erred in leaving our ports unguarded against the intrusion of this Eastern pestilence.

SMALLPOX IN ILLINOIS.—The Quarterly Report of the Secretary of the Illinois State Board of Health

states that at the date of the last report, June 30th, there had been a total of 190 cities, towns, and villages in which smallpox had appeared since Nov. 1, 1881, of which number twenty-two had occurred in the preceding quarter, and there were still cases remaining at nine points. Since then there have been cases at Paxton, in Ford County, near Prairie du Rocher, in Randolph County, and on an island in the Mississippi river opposite Harrisonville, Monroe County. The disease has also been reintroduced into Jersey County through a suit of second-hand clothes bought in St. Louis.

The Paxton cases originated with a stock-dealer and importer of horses, who contracted the disease en route from France in the stock boat Friga, on board of which was a mild case of varioloid. The boat, it is said, escaped inspection at quarantine in New York, and as Hefner, the importer, did not travel on an immigrant train in this country, he also escaped the inspection service. The disease was confined to Hefner's house, but his wife, son, and daughter were attacked, and the son died.

The Monroe and Randolph County cases are believed to have originated from an infected mattress, supposed to have been thrown into the river and washed ashore on Staton's Island. Owing to failure of prompt recognition of the disease, a hired man who had been exposed, was allowed to go to Randolph County, near Prairie du Rocher, where together with himself, there have been in all nine cases with five deaths. The disease seems to have been of a very mild type on Staton's Island, no deaths occurring out of the ten cases.

It is worth while calling attention, in this connection, to the markedly different results obtained in counties under township organization and in those where, in the absence of Town Boards, the County Commissioners are charged with the duties of health authorities. While of course, the most efficient work is done and the disease is most promptly "stamped out" in localities where there are regularly organized Boards of Health, it is yet true that, as a rule, the Town Boards have been only less efficient, and the disease has been generally promptly mastered by their efforts, On the other hand, in counties where the County Commissioners alone have charge, there has, as a rule, been delay in action or neglect, resulting in a spread of the contagion beyond the first cases or families and an undue prolongation of the disease. In Alexander County, for example, the first cases near Commercial Point occurred in the latter part of April and the contagion was not finally eradicated until the 20th of July. The recent outbreak and spread in Monroe and Randolph counties are, to some extent, due to similar causes.

At this date there is one remaining case near Prairie du Rocher, and three in the hospital in Chicago. Aside from these there are no new cases known to exist in the State at present.

The decline of the epidemic in Chicago since the inauguration of the Immigrant-Inspection Service is clearly shown in the following table:

MONTH.	Cases Reported.	Deaths.	REMARKS.
April.....	321	95	Inspection began June 1.
May	281	65	Average decline before inspection, 12 per cent.
June	154	29	
July	44	11	Average decline since inspection, 78 per cent.
August	24	5	
September.....	7	3	

THE NEW YORK CODE.—The Broome, Franklin, and the Columbia are the latest of the New York County Medical Societies to repudiate the new code, and to instruct their delegates accordingly.

By order of the Medical Society of the County of Kings, the discussion of the New York Code will take place at the stated meeting to be held on Tuesday, October 17th.

The FRANKLIN COUNTY (N. Y.) MEDICAL SOCIETY at its quarterly meeting recently held, adopted the following resolutions:

Resolved, That the Franklin County Medical Society deplore the act of the State Medical Society abolishing the wise Code of Medical Ethics by which it had for so many years been governed, and substituting therefor an unwise and senseless code—a code which sacrifices the self-respect and honor of members of a once honorable profession, in order to pander to the self-interest of a few specialists in New York and other large cities of the State.

Resolved, That our delegate to the State Society be instructed, should opportunity present, to vote for the repeal of the present code, and for the readoption and restoration of the old code.

RESIGNATION OF DR. OLIVER WENDELL HOLMES.—It is rumored that Dr. Oliver Wendell Holmes is about to resign his Professorship of Anatomy in the Harvard Medical School.

JOURNAL CHANGES.—The *Louisville Medical News* announces that hereafter it will be under the management of Drs. Lunsford P. Yandell and L. S. McMurtry, of Louisville. Both of these gentlemen are widely and favorably known to the profession, and possess the talent and culture to worthily fill the editorial chair of the lamented Cowling.

The *Sanitarian* announces that on the first of next year it will appear as a weekly journal, with thirty-two double-column quarto pages. It will continue under the editorial management of Dr. A. N. Bell.

MEDICAL EDUCATION IN THE UNITED STATES.—The Annual Report of the Commissioner of Education, for the year 1880, has just been issued by the Government, and from it we learn that during the last decade the number of medical institutions, and of medical students in the United States has about doubled, and that the number of instructors has nearly trebled.

The number of "regular" schools is put down at 72, with 1,131 instructors, and 9,876 students. The "Eclectic" schools number 6, with 65 instructors, and 833 students. The "Homœopathic" schools number 12, with 188 instructors, and 1,220 students.

PATHOLOGICAL PRIZE.—The Pathological Society of Philadelphia, will award the sum of twenty-five dollars, or a gold medal, for the best pathological report, with or without specimens, read before April 1, 1883, by any member of the Society, who at the time of presentation, holds the position of hospital resident.

PERSONAL.—DR. MORELL MACKENZIE, of London, has been making a six weeks' tour in this country. His travels have extended across the Continent, and he has received marked attention.

DR. J. J. WOODWARD, of the U. S. Army, has returned from Europe, and the profession will regret to learn that his health has not been improved by his trip.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The tenth annual meeting of the American Public Health Association will be held in Indianapolis, under the Presidency of Prof. R. C. Kedzie, on October 17 to 20.

A SPECIAL SESSION OF THE SANITARY COUNCIL OF THE MISSISSIPPI VALLEY will be held during the meeting of the American Public Health Association at Indianapolis, Ind., October 17–20, at such time as may be found most convenient, with reference to the programme of the Association. Of this due notice will be given by announcement, at an early hour after the Association has convened. Questions of importance, affecting the sanitary interests of the Mississippi Valley, will be considered.

SUCCESSOR TO PROF. FRIEDREICH.—PROF. ERB, of Leipzig, is mentioned as the successor of the late Prof. Friedreich, of Heidelberg.

OBITUARY RECORD.—We have just learned from our foreign exchanges of the sudden death of DR. HILLAIRET, one of the most distinguished practitioners in Paris. He died of angina pectoris, in his consultation room; he was 67 years of age, and was engaged in the publication of a treatise on "Diseases of the Skin," of which the first fasciculus appeared last year.

A GERMAN AMBULANCE ASSOCIATION.—A society similar to the English Ambulance Association has been formed in Berlin. It was founded at the suggestion of Prof. Esmarch, and its purpose is to render aid to the wounded in cases of accident as rapidly as possible. The Empress has accepted the position of patroness.

ALUM AS A FIRE EXTINGUISHER.—M. DUMAS, the eminent chemist, has been trying some experiments with a concentrated solution of alum, the results of which he lately communicated to the Academy of Sciences. He proposes this substance as an extinguisher of fires, as it renders non-inflammable all substances with which it is placed in contact. He recommends its use for putting out fires in streets, etc. One of the members present observed that in theory the idea was plausible enough, but that its execution would be simply impracticable, owing to the enormous quantities of alum that would be required to meet the demand. It was, however, suggested that several articles in theatres, private houses, shops, etc., might be rendered non-inflammable by having them saturated in a solution of alum, and thus reduce to a minimum the risk of spreading fires.—*Lancet*, Sept. 16, 1882.

HEALTH IN MICHIGAN.—Reports to the State Board of Health, for the week ending September 30, 1882, indicate that bronchitis has considerably increased, that puerperal fever, scarlet fever, whooping-cough, and membranous croup have increased, and that dysentery has decreased in area of prevalence.

Compared with the average of reports for the months of September, in the preceding five years, all diseases except puerperal fever, and cerebro-spinal meningitis, were less widely prevalent during September, 1882, than has been usual during September; and only bronchitis and puerperal fever were noticeably more widely prevalent during the week ending September 30, 1882, than has been usual.

Including reports by regular observers and by others, diphtheria was reported present during the week ending September 30, and since at 23 places, scarlet fever at 10 places, and measles at 4 places. A case of smallpox was reported at Grand Rapids, October 3.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 2 TO OCTOBER 9, 1882.

WOODWARD, J. J., *Major and Surgeon.*—Leave of absence extended four months on account of sickness.—*S. O. 233, A. G. O., October* 6, 1882.

WILLIAMS, JOHN W., *Major and Surgeon.*—Now on leave of absence, to proceed to San Francisco, Cal., and report in person to the Commanding General Division of the Pacific, for duty in Department of the Columbia.—*S. O. 228, A. G. O., September* 30, 1882.

WATERS, WM. E., *Major and Surgeon.*—To report in person to the Commanding General Department of the East, for assignment to duty.—*S. O. 228, A. G. O., September* 30, 1882.

IRWIN, B. J. D., *Major and Surgeon.*—On being relieved as attending surgeon headquarters Military Division of the Missouri, to proceed to Whipple Barracks, Arizona, and report in person for duty as Medical Director, headquarters Department of Arizona.—*S. O. 228, A. G. O., September* 30, 1882.

FORWOOD, WM. H., *Major and Surgeon.*—Relieved from duty in Department of the Platte, and to report in person to the Commanding General, Military Division of the Missouri, for duty as attending surgeon at those headquarters.—*S. O. 228, A. G. O., September* 30, 1882.

SMITH, ANDREW K., *Major and Surgeon.*—Relieved from duty in Department of Arizona, and, on expiration of present sick leave, to report by letter to the Surgeon General.—*S. O. 228, A. G. O., September* 30, 1882.

EWEN, CLARENCE, *Assistant Surgeon.*—Relieved from duty at Fort Elliott, Texas, to proceed to Fort Gibson, Indian Territory, and report to the Commanding Officer at that post for duty.—*S. O. 198, Department of the Missouri, October* 3, 1882.

BURTON, H. G., *Captain and Assistant Surgeon.*—Granted leave of absence for four months.—*S. O. 229, October* 2, 1882.

PURRILLE, HENRY S., *Captain and Assistant Surgeon.*—To be relieved from duty in Department of the East, and to report in person to the Commanding General, Department of the Platte, for assignment to duty.—*S. O. 228, A. G. O., September* 30, 1882.

MOSELEY, E. B., *Captain and Assistant Surgeon.*—To report in person to the Commanding General, Department of the East, for assignment to duty.—*S. O. 282, A. G. O., September* 30, 1882.

SKINNER, JOHN O., *Captain and Assistant Surgeon.*—To be relieved from duty in Department of Arizona, and to report in person to the Surgeon General.—*S. O. 228, A. G. O., September* 30, 1882.

LORING, LEONARD Y., *Captain and Assistant Surgeon.*—To be relieved from duty in the Department of the Missouri, and to report in person to the Commanding General, Department of the East, for assignment to duty.—*S. O. 228, A. G. O., September* 30, 1882.

MCCREERY, GEORGE, *Assistant Surgeon.*—To report in person to the Superintendent Mounted Recruiting Service, Jefferson Barracks, Missouri, to conduct a detachment of recruits to the Department of Arizona. On completion of that duty, to rejoin his station in that Department.—*S. O. 233, A. G. O., October* 6, 1882.

WAKEMAN, W. J., *First Lieutenant and Assistant Surgeon.*—Upon being relieved at Fort Douglas, Utah Territory, to proceed to Fort Fred Steele, Wyoming Territory, and report to the Commanding Officer at that post for duty, in the absence of Assistant Surgeon D. G. Caldwell, on leave of absence.—*S. O. 106, Department of the Plate, Oct.* 6, 1882.

BIRMINGHAM, H. P., *Assistant Surgeon.*—To proceed to Fort Bayard, New Mexico, when relieved at Fort Elliott, Texas, and report to the Commanding Officer for duty.—*S. O. 198, Department of the Missouri, October* 3, 1882.

WATERS, W. E., *Surgeon.*—Ordered to Madison Barracks, New York, for duty as Post Surgeon.—*S. O. 178, Department of the East, October* 5, 1882.

OWEN, WM. O., JR.—*First Lieutenant and Assistant Surgeon.*—To proceed to Fort Townsend, Wyoming Territory, and report to the Commanding Officer for temporary duty at that post.—*S. O. 138, Department Columbia, September* 22, 1882.

CALDWELL, D. G., *Captain and Assistant Surgeon.*—Granted leave of absence for one month, with permission to apply for an extension of three months.—*S. O. 105, Department of the Platte, October* 3, 1882.

THE MEDICAL NEWS will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.

Local papers containing reports or news items should be marked.

Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

All communications relating to the editorial department of the NEWS should be addressed to No. 1004 Walnut Street, Philadelphia.